British Birds

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Three Shillings

June 1960

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AN ILLUSTRATED MONTHLY JOURNAL

Edited by

P. A. D. Hollom E. M. Nicholson

I. J. Ferguson-Lees Stanley Cramp

Photographic Editor: Eric Hosking

Hon. Editors: W. B. Alexander N. F. Ticehurst

Editorial Address: 30 St. Leonard's Avenue, Bedford

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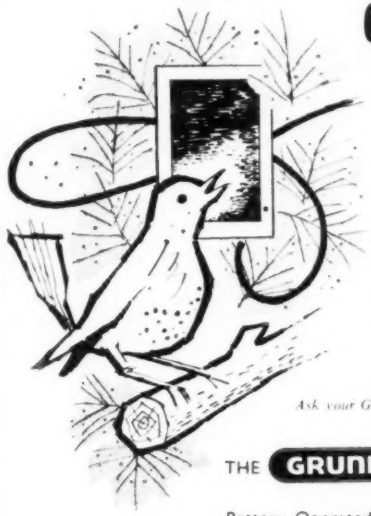

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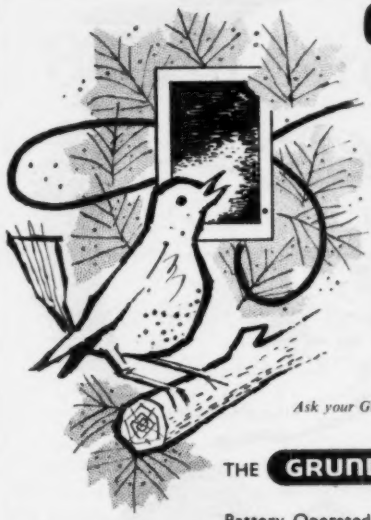

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British Birds

VOL. 53 NO. 6
JUNE 1960

Lesser Short-toed Larks in Cos. Kerry, Wexford and Mayo: a bird new to Britain and Ireland

A HIGHLY INTERESTING and fully accepted addition to the list of the birds of Britain and Ireland that has not yet received full notice in this journal is the Lesser Short-toed Lark (*Calandrella rufescens*). Since 1956 there have been four records in Ireland, in Cos. Kerry, Wexford (twice) and Mayo, involving a total of over 40 birds. This species is mainly a summer visitor to southern Spain, the Canary Islands and North Africa, and from south-west Asia and southern Russia to Mongolia and Manchuria. It is, of course, illustrated in *A Field Guide to the Birds of Britain and Europe*. The occurrences have been recorded in the *Irish Bird Report* (1956, pp. 15 and 24; 1958, p. 30), but most of the details given below are being published for the first time.

The first record was of a flock of 30 birds seen by Frank King at Derrymore Island, Co. Kerry, on the curious date of 4th January 1956. He was unable to identify them at the time, but he took the following detailed notes:

> A compact party of 30 small larks feeding in fairly close-cropped grass in an area consisting of a mixture of grazing and salt marsh. Very small for a lark, almost as small as a Twite (*Carduelis flavirostris*), but in contour identical with Short-toed Lark (*Calandrella cinerea*) seen on Great Saltee, Co. Wexford. They differed from the latter species in being a shade darker on the upper-parts, in having the upper breast evenly ticked with short dark brown streaks on a pale buff ground, and in being without any dark patches on the sides of the neck. The ticking extended down either side of the breast with decreasing intensity, and was only just discernible on the flanks of some birds, though more pronounced on others. There seemed to be some slight variation in the intensity of markings between one bird and the next, but the general features were the same on all. The crown was finely streaked dark brown, the streaking becoming less defined on the nape; brown-streaked "cheek-patches" were rather accentuated by being bordered above by pale superciliaries and below by a pale line which ran along the lower edge of the ear-coverts. The back was finely speckled and marbled dark brown and light brown. Two very

thin buff wing-bars were formed by pale tips to the greater and lesser wing-coverts. The tail was dark brown with white outer feathers. The belly was off-white (appearing white in flight), becoming palest buff on the breast; the chin was buff and unstreaked. The bill was lark-like (i.e. exactly as Short-toed Lark), greyish-horn in colour. The shortish legs were light brown. The voice, heard chiefly in flight, was reminiscent of the call of a Skylark (*Alauda arvensis*), but weaker and more metallic—though not quite as metallic as that of the Short-toed Lark. A second note was not unlike the "rick-kick-kick" of a Turnstone (*Arenaria interpres*), but sharper; this was sometimes delivered as a single call and at other times repeated fairly rapidly (possibly by more than one bird). The larks ran and walked about on the grass and frequently crouched behind tussocks, often stretching up their necks to obtain a better view when they found they were being stalked. When disturbed they flew only short distances, and they were often disturbed as they were repeatedly followed up and seen many times as close as 9 or 10 feet and less. The day was very sunny and mild.

By a happy coincidence Frank King was on Great Saltee, Co. Wexford, with P. D. Nolan, F. O'Gorman and R. G. Pettitt when a party of five small larks identical in appearance and voice with King's Derrymore birds was found on 30th March 1956. Next day four were still present. They were identified as Lesser Short-toed Larks. Full details and sketches are in the Saltee Bird Observatory record-books.

Then on 21st May 1956 Frank King, this time in company with R. G. Wheeler, encountered two Lesser Short-toed Larks on a short grassy stretch in a marshy area near Belmullet, Co. Mayo. They showed all the characteristics which had been noted in the birds at Derrymore in January and at Great Saltee in March, i.e. small size, streaked crowns, pale buff superciliaries, pale line surrounding brown-streaked ear-coverts, speckled and streaked upper-parts, two thin pale wing-bars, pale buff-washed breast and pale belly, vertical ticking across upper breast and down either side to fade out on the flanks, legs honey-brown, bills stout and grey. They spent much time preening or quietly feeding but one bird flew up once or twice to a height of nine or ten feet and sang a brief snatch of song—a rather jangling mixture of clicking and sweetly musical notes. Otherwise they remained silent. There were many Skylarks in the area for size-comparison.

Finally, two years later, in March 1958, R. G. Pettitt and Major R. F. Ruttledge found another small party on Great Saltee, Co. Wexford. Five were seen on 22nd March 1958—three together and two others which occasionally joined them. Excellent views were had from behind a low bank at a range of about 30 feet. The next day, 23rd March, only one could be found in spite of a careful search, but it was seen several times and once at a distance of less than 20 feet. On 24th March, however, two were again seen and on the 25th four. The following is a summary of the main points noted:

On the ground they were more reminiscent of large Redpolls (*Carduelis flammea*) or Linnets (*C. cannabina*), but in flight they proclaimed their true relationship by

their general similarity to small Skylarks with their white outer tail-feathers and pale wing edgings, and by their calls which, however, were lower, weaker and more melodious than those of Skylarks. In size they were much less than the Skylarks which were also present (though the two species did not associate either on the ground or in flight) and when both were in the air the difference was very striking. Apart from size, the most noticeable feature was the finely streaked gorget which in some of the birds ended in an abrupt line across the breast, contrasting with the creamy colour of the rest of the underparts. The chin and throat also showed up lighter against the finely streaked breast, though the birds normally fed quickly with a stabbing action, holding their heads low in a hunched position, so that these areas were invisible. No neck marks such as those in Short-toed Larks could be detected. In general the colour above was rather like that of darker examples of the Meadow Pipit (*Anthus pratensis*), though somewhat warmer, and the upper-parts were thus darker than those of the average Skylark. One bird on the 22nd, however, was much lighter and more hoary above than the others; this bird's crown also had noticeable dark markings. On the 24th, when the best view of all was obtained, it was noted that the two birds seen then had a golden tinge to the upper-parts, a faint and narrow whitish or yellowish wing-bar and pale tips to the secondaries. None of the birds showed any sign of a crest; their bills were noticeably small and neat and relatively fine; and their legs were yellow-brown. On the whole they were very nondescript.

R. G. Pettitt considered these birds to be identical in their main characters with those seen by him and others on the same island in March 1956.

Juvenile and winter plumages of the marsh terns *

By Kenneth Williamson
Migration Research Officer, B.T.O.

(Plate 36)

IDENTIFICATION of the three British marsh terns (*Chlidonias* spp.) outside the breeding season has long constituted a problem for the bird-watcher. There is a cautionary note in *The Handbook of British Birds* (vol. v, pp. 7 and 9) to the effect that the Whiskered Tern (*Ch. hybrida*) and White-winged Black Tern (*Ch. leucopterus*) are probably not separable in winter in the field, though the detailed descriptions of the two in the same work (pp. 8 and 11) give the impression that the young birds have the rump grey in the former species and white in the latter. Meinertzhagen (1954, p. 514) uses this character for distinguishing *leucopterus* in his key to Arabian Laridae. Those who are familiar with the group in breeding dress (when, of course, they are readily distinguishable from one another) have expressed the view

*A publication of the *British Birds* Rarity Records Committee.

that differences in build and flight might also be important outside the breeding season.

Several autumn records of the White-winged Black Tern have been claimed in the last two years, as well as a number of summer ones in the previous decade. Two autumn observations were accepted in 1958 (*Brit. Birds,* 53: 166), and in 1959 no less than four (in addition to five more in the spring and summer). Thus this species seems to be occurring with a fair regularity and it is probable that some individuals are overlooked in autumn plumage through lack of knowledge of the diagnostic characters. This study seeks to establish what are the most reliable characters for identification of the three marsh terns in juvenile, first-winter and adult winter plumages. It is based partly on field observations in connection with the records mentioned above, and partly on the examination of over a hundred non-breeding specimens at the British Museum (Natural History).

The characters which give the most promise of proving effective in field discrimination are first considered separately in the light of museum examination; then in the second part of the paper actual field-notes are discussed and the main points summarised in Table I on page 249.

MUSEUM EXAMINATION

Size of bill

There is a marked difference in bill-size between the Black Tern (*Ch. niger*) and the White-winged Black Tern. The latter has a small, stubby bill measuring 22-25 mm. from the feathers (10 specimens, both sexes), decidedly shorter than the head; whilst the Black Tern has a longer though comparatively weak-looking bill measuring 27-28 mm., nearly as long as the head. The figures given in *The Handbook* for the Whiskered Tern are misleading, suggesting that this bird has the longest bill of all (30-34 mm.), with a pronounced gonys similar in form to the bills of sea terns (*Sterna* spp.). This is true only of the males (29-34 mm.), the females having much smaller bills (25-27 mm.), only a little longer and more robust than in the White-winged Black Tern.

Bill-size, therefore, is a character of rather uncertain value, best used to corroborate other field-characters.

Sides of breast

As stated in *The Handbook* (vol. v, p. 9), the Black Tern has greyish-brown smudges on the sides of the white breast, a downwards extension of the plumage of the upper-parts, and these markings are diagnostic of this species in all the non-breeding plumages. Note, however, the warning that these patches vary in size and are "not always at all conspicuous in the field".

Confusion on this score could also arise in the event of a White-winged Black Tern, moulting from breeding into winter plumages, retaining a few old blackish feathers in this region. Such specimens in the British Museum, however, always had a few other black feathers admixed with the white underparts, and showed a good deal of black in the under wing-coverts.

Head

The forehead is white in all three species. All have black or blackish-brown "caps", with the crown generously flecked with white in the juvenile Whiskered and the hind-crown more uniformly blackish —though in the winter adult this too is flecked with a certain amount of white. The white flecking is less pronounced in the juvenile White-winged (though well-marked in the winter adult), and the colour is uniformly blackish-brown in both juvenile and adult Black Terns. There is a dark triangular patch forward of the eye, bigger in the Black Tern than in either of the other two.

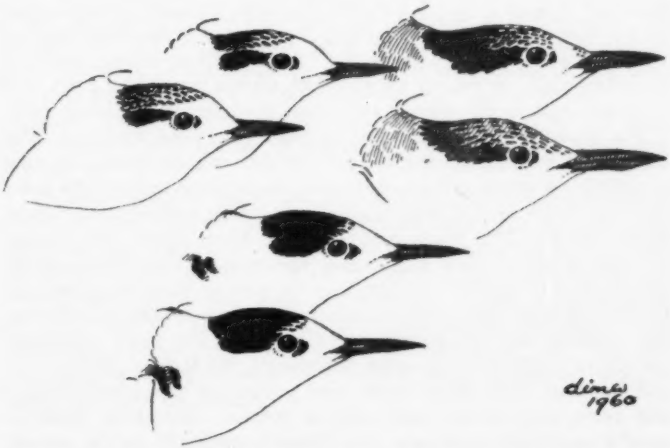

FIG. 1. Head-patterns of marsh terns in non-breeding plumages (from skins): top left, White-winged Black Tern (*Chlidonias leucopterus*); top right, Whiskered Tern (*Ch. hybrida*); bottom, Black Tern (*Ch. niger*). In each case the upper head is a juvenile (from a late August or early September specimen) and the lower a winter adult (from an October specimen). Compare the amounts of flecking on the crowns and the extents to which the dark ear-coverts are or are not joined to the crown-caps, the presence or absence of shoulder-marks, the sizes and shapes of the bills, and the sizes of the triangular patches in front of the eyes (see text) (*sketches: D. I. M. Wallace*)

The head-pattern provides an additional character for distinguishing Black from the other two terns in adult winter plumage. Whereas in the Black Tern the blackish-brown of the crown is united with the similarly-coloured ear-coverts, forming a complete hood, there is a sharp contrast in the White-winged Black Tern between the nearly isolated black ear-coverts and the white-peppered crown. In the Whiskered Tern the black ear-coverts are joined to the black of the hind-crown and the space above is mottled with white, so that the black appears as a C-shaped band. However, apart from a greater tendency in the White-winged for the ear-coverts to appear as an isolated patch, it is doubtful if other than the long-billed male Whiskered Terns could be safely distinguished on the appearance of the head (see Fig. 1).

Nape, mantle and rump

Juvenile Black and White-winged Black Terns have fairly broad white collars; the Whiskered has the sides of neck white, and although this sometimes continues across the nape, the collar is less sharply defined.

Examination of skins suggests that in many specimens the back of the neck is pale grey, though one must be alive to the danger that the make-up of skins in which the neck has been too much retracted may give a false impression. The rump is pale grey in the Whiskered in all plumages; clear white in the juvenile White-winged and the moulting adult, becoming grey in both phases late in the year; and brownish-grey in the juvenile and winter plumages of the Black Tern.

The plumage of the upper-parts is diagnostic in the juveniles. The Black Tern is drab, the slightly paler feather-edgings providing little contrast; the rump and tail are brownish-grey and only a little paler than the darker mantle, which is the same colour as the brown-flecked wing-coverts. The White-winged Black Tern shows the greatest contrast, since the clear white collar and rump isolate the mantle as a dark brown "saddle", darker than the greyish inner wing with its brown-tipped coverts. The mantle feathers have narrow paler brown tips, as have also the tertials and scapulars. The most variegated pattern is found in the juvenile Whiskered, the feathers of the back and scapulars being dark brown with prominent broad buff edgings and often subterminal buff bars or centres. Moreover, there is usually an admixture of new grey feathers, especially on the mantle, quite early in the autumn: two specimens from Valencia, Spain, dated 26th July, already have a considerable amount of pale grey and the rumps, though a little paler than the tails, are definitely grey not white (see plate 36).

In the case of the White-winged Black Tern the white rump persists until late in the year and there can be no doubt that this feature, combined with the "saddle" effect, is diagnostic of young birds for as

long as they are likely to be seen in Europe in the autumn. A bird from Nyasaland dated 9th December has many grey first-winter mantle feathers, and the rump also is grey; a December bird from Transvaal has the mantle and tail murky grey and the rump paler, but not white; and birds from Kenya dated 14th and 30th December have nearly completed the moult (but retain worn juvenile tertials) and their rumps are grey. Birds fairly well advanced into first-winter plumage but still showing white rumps contrasting with grey tails are from Lake Chad, French Equatorial Africa, 1st November; Potchefstroom, South Africa, 24th November; Kuruman, South Africa, 1st December; and Transvaal, 9th December. It would appear that the change takes place in most birds during November.

This plumage is followed by a partial body moult coupled with a complete moult of the remiges during the following summer, which suggests that the White-winged Black Tern does not breed until its second year. Birds from Lake Edward, Uganda, 26th May, Lake Yirol, Sudan, 7th June, and Nyasaland, 25th June, are in a plumage similar to the adult winter. There are three other specimens collected at Lake Edward on 26th May: the first, a male, is still in the winter grey with a few new blackish feathers in the mantle, under-parts and under wing-coverts, and the rump and tail white as in the adult; the second, also a male, is much more advanced in summer plumage, with a blacker back contrasting with white tail and rump, and pied under-parts and under wing-coverts; and the third, a female, is in a condition somewhat intermediate between these two. All are more than half-way through the moult of their primaries, and have new tertials.

The adult White-winged Black Tern also retains the white rump until fairly late in the moult, and until after the new grey rectrices have appeared, but examples in change to winter plumage are easily recognisable so long as a few old black feathers remain in the mantle and under-parts, and in the under wing-coverts. After completion of the moult they can be told from Black Terns by a combination of the characters of breast-markings, head-pattern and size of bill. The size and shape of bill will distinguish them from male Whiskered, but not from females of this species.

FIELD OBSERVATIONS

Whiskered and White-winged Black Terns

D. I. M. Wallace, who has had experience of these terns in winter in Africa, found the Whiskered much more reminiscent of a *Sterna* in flight and general appearance. "It is interesting to note," he writes, "that Mackworth-Praed and Grant (1952) are at pains to distinguish *hybrida* from *Sterna hirundo* and *repressa* rather than from *Chlidonias niger*

and *leucopterus*." When watching and sketching resident Whiskered and migrant Black Terns at Etang Marais in central France on 15th August 1955 he noticed a different flight-action, *hybrida* having little of the wing flexibility so obvious with *niger*. "I remember the flight of *hybrida* as direct and confident," he concludes; and other people have made similar comments.

A. Hazelwood says (*in litt.*) that "*hybrida* is obviously a couple of inches longer overall than the other two marsh terns and this difference is quite apparent in the field. In consequence the wing is relatively shorter and this too shows in giving the flight an appearance mid-way between that of a marsh tern and a *Sterna* one. In fact, *hybrida* seen in Australia gave me little impression of a marsh tern at all for, where I saw it, it was a fluviatile species. I have only once seen the species in Britain but then the "jizz" was quite distinctive and not, I think, to be confused by anyone familiar with *niger* or *leucopterus*".

With regard to the difficult problem of discrimination between the Whiskered and White-winged Black Terns in their very similar winter dress, Wallace makes three tentative points: that the rump, though grey, looks paler than the back in *leucopterus* but uniform with it in *hybrida* (see H. G. Alexander's supporting evidence below); that the White-winged Black Tern has a complete white collar contrasting with grey mantle and black hind-crown, whereas in the Whiskered Tern the nape appears greyish and the collar therefore incomplete; and that the tail always appears slightly forked in *hybrida*, but often appears square in *leucopterus*. As shown on pages 246-247, museum examination tends to confirm the first two points, and tail-measurements suggest good grounds for the last.

H. G. Alexander, who has watched wintering marsh terns in India, says that the upper-parts of *hybrida* appear a silvery grey, considerably paler than winter *niger*, but he has no experience of where to place *leucopterus* in this respect. Museum examination suggests that in *leucopterus* the mantle is also less pure. These, however, are difference of degree and could only be resolved under the most perfect conditions for critical observation, with the tail-character and bill-size used as corroborative features.

Hazelwood makes the point that in view of the marked similarity between Whiskered and *Sterna* terns it is advisable to enter a strong caveat concerning the possibility of confusion between *hybrida* and the "*portlandica*" phase of the Arctic Tern (*Sterna macrura*). This rather rare phase (mentioned in *The Handbook*, vol. v, p. 39) has an oddly adult appearance, with a very similar head to *hybrida*, a black bill of about the same length, and black legs. It differs from *hybrida* in having a complete white collar and white rump, as will be seen from Table I.

TABLE I—THE CHARACTERS OF THE THREE MARSH TERNS (*Chlidonias* spp.) IN NON-BREEDING PLUMAGES

There is also a strong possibility of confusion between *Chlidonias hybrida* and the phase of the Arctic Tern (*Sterna macrura*) known as "*portlandica*" (see page 248); a fourth column is therefore added for this bird.

	Black Tern (*Ch. niger*)	White-winged Black Tern (*Ch. leucopterus*)	Whiskered Tern (*Ch. hybrida*)	"*Sterna portlandica*"
Length	9½ inches	9 inches	11 inches	12 inches
Mantle	Dark brownish-grey in juvenile, with no "saddle" effect; lighter brownish-grey in adult	Dark brown "saddle" in juvenile; ash-grey in adult	Variegated brown, buff and greyish in juvenile; silvery-grey in adult	Grey; scapulars fringed brown, some tipped white
Upper wing	Uniform with mantle in both juvenile and adult; dark band joining carpalia	Paler and greyer than mantle in juvenile; uniform with mantle in adult	Pale grey in both juvenile and adult	Grey with white leading edge
Nape	Complete white collar, occasionally suffused with grey in adult	Complete white collar in both juvenile and adult	Pale grey in both juvenile and adult	Complete white collar
Rump	Pale brownish-grey in both juvenile and adult	Clear white in juvenile; pale grey in adult (but sometimes white in moulting adult)	Pale grey in both juvenile and adult	White
Tail	Grey in both juvenile and adult; often looks "square"	Grey, often looking "square" in juvenile; pale grey in adult (but sometimes white in moulting adult)	Pale grey in both juvenile and adult; always looks "forked"	Whitish (grey outer webs); deeply "forked"
Head	Crown and ear-coverts form black hood in both juvenile and adult; face white	Black ear-coverts isolated in both juvenile and adult; crown flecked white; face tinged yellowish	Forehead white in both juvenile and adult; crown white streaked black; hind-crown to ear-coverts black	Forehead white; crown white streaked black; hind-crown to ear-coverts black
Bill	Long, slender and looking slightly decurved	Short and stubby	Long as head and straight with pronounced gonys in males; short and stubby in females	Long as head and straight with pronounced gonys
Flight action	Slim build; full wing-beats; dynamic action	Thick-set build; shallow wing-beats; more leisurely action	Similar to *Sterna*	As *Sterna*

FIG. 2. Flight-silhouettes of marsh terns (from photos in *British Birds*, 48: plates 54-56): three left, White-winged Black Tern (*Chlidonias leucopterus*); two right, Black Tern (*Ch. niger*). The former has broader bases to its wings and is a more thickset bird with a squarer tail, a slower and shallower wing-beat, and a shorter bill (see text) (*sketches: D. I. M. Wallace*)

White-winged Black and Black Terns

A juvenile White-winged Black Tern at Radipole Lake, Weymouth, Dorset, during 19th-23rd August 1959, and one at Hanningfield Reservoir, Essex, during 5th-13th September 1959, were present for part of the time with Black Terns, and some notes on the comparisons may be useful. Only the Black Terns had the dark smudges at the sides of the breast, and their head-markings were more extensive (p. 246). The Black Terns were more uniformly brownish-grey on the upper-parts, rather lighter on the rump but grey, not white, and this difference between the two species was noticeable through field-glasses at well over a hundred yards. In the Radipole Lake birds we saw that the white parts of the head—fore-crown, cheeks and region behind the ear-coverts—were clear white in the Black but had a distinct creamy or pale yellowish suffusion in the White-winged Black Tern. The bill of the Black was long and had a slightly decurved appearance (the stouter bill of the male Whiskered, with its more prominent gonys, would probably not appear decurved), whilst that of the White-winged Black Tern was short and stubby by comparison. Both occasionally gave the impression of having a slightly forked tail, but when fully spread the tail appeared square: there was nothing to choose between the two in this respect.

Both specimens of *leucopterus* were described as having a light grey central panel in the wing. This effect was probably more marked in the Hanningfield bird, since one observer described it as "a shadow" of the upper wing-pattern of the breeding bird and wrongly concluded that "the wings and back were 90 per cent moulted" to winter plumage. D. I. M. Wallace identified this bird as a juvenile, and the absence of any pied effect on mantle and under-parts, and of black in the underwing, is confirmatory. The difference in wing-plumage should assist in identification: the fore-wing of the Black Terns was very dark, so that in Wallace's words there was "a dark band from carpal joint to carpal joint, broadest between the shoulders" (see plate 36). The paler wing of the White-winged Black Tern, though somewhat darker on the lesser coverts, has a distinct white line along the leading-edge.

Apart from the plumage differences, the Black Tern is a slimmer bird with a quicker wing-beat, the White-winged Black Tern appearing to have a more leisurely flight with noticeably shallower wing-beats and more frequent planing and gliding. The wings of the Black Tern seem narrower at the base (Fig. 2). In the case of the Radipole Lake *leucopterus* there were times when its flight reminded us of a Little Gull (*Larus minutus*), with its blunt, rather thick-set build, broad-based wings and squarish tail, and the same comparison was made quite independently by Wallace when viewing the Hanningfield bird only shortly after seeing an immature Little Gull at Abberton Reservoir, Essex.

SUMMARY

Discussion is made of several characters, actual and putative, for separating the three marsh terns—Black (*Chlidonias niger*), White-winged Black (*Ch. leucopterus*) and Whiskered (*Ch. hybrida*)—in juvenile, first-winter and adult winter plumages. These characters, based partly on museum examination and partly on field-notes, are summarised in Table I on page 249. It must be firmly emphasised that in some cases the conclusions are tentative and need further testing in the field, particularly in the cases of winter Whiskered and White-winged Black Terns, and that this study can only be helpful if used with due caution and with an understanding of the difficulties.

ACKNOWLEDGEMENTS

The observations of a number of people have contributed to this study. I am particularly indebted to D. I. M. Wallace, whose excellent sketches greatly help towards an elucidation of this problem; to A. Hazelwood of the Bolton Museum for assistance with the table and the loan of a specimen of "*Sterna portlandica*"; and to K. D. Smith, H. G. Alexander and I. J. Ferguson-Lees for helpful discussion. Smith, R. F. Moore, A. Quinn and N. Money, together with Miss M. D. Crosby and my daughter Hervör, discussed points with me in the field at Radipole Lake on 20th-21st August 1959. Acknowledgement is also made

to those who submitted observations to the Rarity Records Committee, and whose names will appear in their Reports. I thank Mr. J. D. Macdonald, Keeper of Birds, for access to skins in the collection at the British Museum (Natural History).

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The distribution and numbers of Kittiwakes and Guillemots at St. Kilda

By J. Morton Boyd
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(Plates 33-34)

INTRODUCTION

THERE ARE several reasons why no attempt has previously been made to describe in detail the distribution and numbers of the Kittiwake (*Rissa tridactyla*) and the Guillemot (*Uria aalge*) at St. Kilda. The colonies are extremely difficult of access, being at the bases of cliffs which are seldom less than 500 feet high, and can be viewed satisfactorily only from a small boat sailing close in. They are scattered along 21 miles of coastline, and wind, swell, tide and fog make systematic survey of this kind very difficult. Even on calm days the motion of the boat is such as to make accurate counting out of the question in many places.

In the first survey of the breeding birds of St. Kilda, Harrisson and Lack (1934) said of Kittiwakes only that there were "colonies of moderate size on the steep lower parts of the cliffs", and of Guillemots, "not uncommon, most colonies like those of the Kittiwakes being on the steep lower parts of the cliffs". Nicholson and Fisher (1940) had a closer yet hastier look at the situation and thought there might be 20,000 breeding pairs of both species, but they mentioned only three different breeding sites of Guillemots and none of Kittiwakes. Williamson (1958) considered that this estimate of Kittiwakes was "much too high". Two other reports (Bagenal 1953, Boyd, Munns and Whitehouse 1956) gave no more information, but in a survey in 1956 (Boyd, Tewnion and Wallace 1957) the general strength of the populations and the location of a few of the major colonies of both species were mentioned. Looking closely at the situation in 1959,

however, it was clear that none of the previous surveys had come near to showing the true status of these two birds at St. Kilda.

In his capacity as the Nature Conservancy's Regional Officer for West Scotland, the author spent most of May 1959 at the islands of the St. Kilda group. During that month the weather was exceptionally fine and, in company with Mr. Murdo MacDonald of Tiree, temporary coxswain of the Conservancy's 18-foot boat *Fulmar*, and others, the author made 3 circumnavigations of the Hirta, Soay and Dun group, 3 return visits to Soay by the Mina Stac passage and 1 by the natural arch passage on Dun, 3 visits to the Boreray group, 2 to the south-west coast of Dun and 2 to Levenish. Only a few trips were made with the primary aim of surveying the Kittiwakes and Guillemots, but notes on these species were made every time and, as the month progressed, gaps became apparent and the need for a systematic review of the whole situation seemed necessary. Accordingly, between 19th and 22nd May all parts of the coast of all the islands and stacks were visited by the author and Mr. MacDonald. All aggregations of Kittiwakes and Guillemots were mapped and rough estimates of numbers made.

METHODS

Twenty-one miles of coastline had to be covered in a few days and as many more miles in reaching and returning from distant colonies on Boreray and Soay. It was clear that in the circumstances one of two procedures had to be adopted: *either* an accurate plot of all the colonies situated over 50 yards apart but with only rough estimates of numbers present, *or* accurate counts as well as plots of just a few more accessible colonies on the north coast of Hirta and the south-west coast of Dun. It was decided to attempt the former: the results would be more comprehensive, would be a contribution to the survey of Kittiwakes throughout British coasts organised by the British Trust for Ornithology in 1959, and would be a good foundation for more detailed work later.

Fulmar was kept where possible within 100 yards of the cliff-bottom; notable exceptions to this rule were on the northern and western walls of Soay and Boreray where the choppy conditions of the sea made it impossible to view the precipices from any closer than 200 yards or more. Speed was reduced when necessary and most of the geos or inlets which did not possess hazardous rocks were visited. The boat was kept continuously under way and, though more attention was proportionately given to larger colonies than smaller, the method of assessment was both rapid and consistent.

Before embarking on the comprehensive survey between 19th and 22nd May, familiarisation counts and estimates of pairs were carried out on the colonies of Dun and at Gob na h-Airde on Hirta, and as the survey progressed the eye became more accustomed and the

judgement more practised. The colonies were categorised as follows: 10 (including 1-10), 20, 50, 100, 200, 300, 400, 500, 1,000. In a survey of this sort it is difficult to say with confidence what the error of the estimate is likely to be. In both species most of the colonies fell within the categories 20, 50 and 100, and the error could be as much as 50 per cent if a colony of 75 were placed in the category of 50.

In the case of the Kittiwakes there was no suggestion of bias and the chances of under-estimating seemed equal to those of over-estimating, so that an error of ±20 per cent would be realistic on the final result. In the case of the Guillemots, however, there was a much greater chance of under-estimating since many of the nesting ledges were recessed and contained an unknown number of birds out of sight. Some of this under-estimation might be made good by a tendency to over-estimation in colonies fully in view, and also by the inclusion of small numbers of Razorbills (*Alca torda*) with the Guillemots. This Razorbill error is likely to have been small, however, since Razorbills at St. Kilda breed in hidden sites under boulders and crevices; the main colonies are on Dun and Soay and there are smaller colonies on Hirta, Boreray, Stac an Armin and Levenish. It would probably be realistic to assume that anything up to 20 per cent should be added to the final figure for Guillemots.

The nesting sites contained both breeding and non-breeding birds. Coulson and White (1956) showed that in colonies of Kittiwakes in Northumberland and Co. Durham 19 per cent of the birds were non-breeders, and that more than 80 per cent of the nesting sites were occupied by the end of March. Most of the Kittiwake ledges are likely, therefore, to have been fully tenanted and, judging from the amount of courting and treading, the Guillemot ledges were probably also fully occupied. It is again difficult to know whether to label the figures as "birds" or "pairs"; they are, at best, indices obtained by the methods described. The familiarisation counts, on which rapid estimates were subsequently based, were of "pairs" and it would be more realistic to label them all as such. In any case, however, the method was standard and, irrespective of the labelling, the indices give a measure of the comparative sizes of the colonies. Further detailed counting of "pairs", particularly in the larger (and probably more stable) colonies, with subsequent application to the indices, will give a more accurate appraisal of the situation. The presence of non-breeding birds is to some extent made good by the absence of breeding birds in flight, though Coulson (1959) has shown that few non-breeders are to be expected in Kittiwake colonies in late May. A 6-inch map, folded to a handy size, was taken in the boat. The colonies were plotted with an arrow pointing to the spot on the cliffs and the estimate of numbers noted beside it. It was found that the map did not present an exact picture of the coast, but it was good

enough for the purpose of the survey. The colonies were plotted to an accuracy of about 20 yards. In some localities they were positioned very close to each other and in one or two cases there was difficulty in deciding which were and which were not discrete units. Aggregations with more than 50 yards of cliff free from birds between them were judged to be discrete. In the case of the large colonies such as those on the western wall of Boreray, the centre of the colony was plotted.

THE COAST

The outline of the coasts of all the islands was checked with a map measurer on the 6-inch map and found to total approximately 21 miles. Starting at Giasgeir in Caolas an Duin and moving anti-clockwise, the coast of Hirta was marked off in 10 sections each a mile long (except Section 10 which is 1½ miles long). Dun, Soay and Boreray, each of which has a coastline of approximately 3 miles, were similarly marked off. Each mile of coast was given a serial number from 1 to 21 (Figs. 1 and 2). Stac an Armin and Stac Lee were considered together as one (Section 20) and the small stacs, Levenish, Soay Stac, Stac Biorach, Stac Dona and Am Plastair, as another (Section 21). Mina Stac, Bradastac and Sgarbhstac were included in the section of coastline opposite.

The following brief description of the coast is designed to bring out the features of rock formation particularly associated with breeding colonies of Kittiwakes and Guillemots, namely the vertical or near-vertical sections, the ledge systems and the caves. The colonies were, with a few exceptions, situated within 250 feet of the sea. The upper reaches of the cliffs usually slope off on to steep green terraces interspaced with shattered buttresses and towers, or continue upwards as bare vertical walls or vegetation-covered precipices cut across by terraces carpeted with grass and talus.

With the exception of a short distance in Village Bay (Section 1), the entire coast is cliff-bound. Four main categories of cliff were seen: (a) granite walls, (b) gabbro walls, (c) gabbro (and breccia) buttresses and bastions, (d) slabs and beaches.

The granite walls (Sections 2, 3, 4) are vertical and severely undercut (plate 33a). The undercutting probably restricts Guillemot colonisation except in places such as Stac a' Langa which is built of blocks with steep flights of flat ledges, the Bradastac which rises in three broad-ledged tiers, and the base of the great Conachair cliff where long gently-sloping sills give favourable ledges. The Mina Stac is largely unsuitable with unfavourable rock cleavages, plated walls and wispy ledges, but locally there are suitable Guillemot stances. The Kittiwakes might be expected to gain a better hold on the undercut rock, but the faces are very smooth and subject in many localities to seepage

water from above. The Kittiwakes are found packing in with the Guillemots on the finer ledge systems, usually on the periphery of the latter colonies. There are at least a dozen caves, some of the largest of which (under Oiseval) have only small groups of birds, very disproportionate to the size of the portals; others under Conachair have bigger colonies.

The gabbro walls (Sections 5, 14, 15, 16, 17, 18, 19, 20) are vertical and generally undercut (plate 33b). There is a much wider range of conditions in those sections than in the granite, but the smoothness of the rock, the persistent vertical jointing, the steepness of the fractures, the bevelling and the unfavourable overlap of ledges render them to a large extent unsuitable to Guillemots. Kittiwakes might again be expected to have gained a better hold, but they do not appear to have done so. The 1,000-foot walls of Soay (Sections 15 and 16) and Boreray (Sections 17 and 19) and the 500-foot walls of Stac Lee (Section 20) have criss-cross systems of fissures tenanted in the latter two by Gannets (*Sula bassana*). There are probably at least twenty caves, large and small, at the base of the gabbro walls giving more irregular shattering and a greater variety of ledges than in the case of the granite.

The gabbro (and breccia) buttresses and bastions (Sections 1, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 17, 19, 20, 21) probably total more than all the other categories put together and they seem to be, for the most part, unsuitable to both species (plate 34a). Where the tumbling buttresses and bastions meet the gabbro walls there are recessed chasms and caves (the number of which is unknown but probably over twenty). These have favourable ledge systems usually associated with fragmented dykes and sills. This type of coast is best illustrated on the south-west coast of Dun and between Na Cleitean and Gob na h-Airde, where the great smooth bevelled blocks are cut through by steeply angled sills with deep lengthy ledges. Many of the buttresses are plated with thin vertical sheets sometimes favourably overlapped to give flights of irregular ledges.

The slabs and beaches (Sections 1, 3, 4, 6, 10, 11, 14) are very local and constitute a very minor part of the coast (plate 34b). They are generally backed by precipices. In Village Bay and Dun (Sections 1, 11) and the recess of Glen Bay (Section 6) this precipice is composed of drift material and is unsuitable for both species. The beach at Mol Ghiasgar, the ramp at Leac Mhina Stac, the slabs and boulder beach on the east coast of Soay (Section 14) are backed by vertical walls of solid rock (and, in the case of Mol Shoay, by steep talus).

DISTRIBUTION OF KITTIWAKES

The colonies of Kittiwakes are shown in Fig. 1. It is possible that a number of the smaller ones were not nesting aggregations, but merely

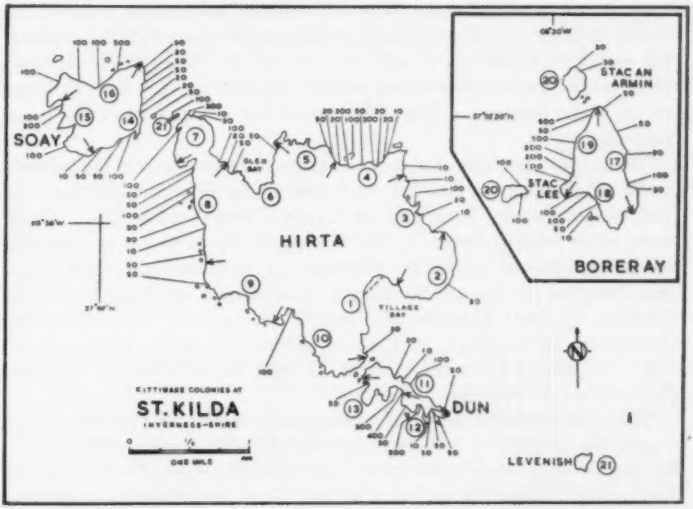

FIG. 1. Positions and sizes of colonies of Kittiwakes (*Rissa tridactyla*) on the various islands of the St. Kilda group, May 1959. Sizes were categorised under 10, 20, 50, 100, 200 and 50 on (page 254). The coastline totals approximately 21 miles (page 255) and the circled numbers are those which were given to different mile-sections (the limits of which are indicated by arrows)

non-breeding birds on perching-sites or future breeding-sites (*cf.* Coulson and White 1956). However, this is unlikely since all seemed to be nesting colonies and it is probable that the non-breeding element, shown by Coulson (1959) to be small, was packing in with the breeding birds.

There were 7,660 pairs (±20 per cent) estimated in 85 colonies situated at least 50 yards apart. The frequency distribution of colony

TABLE I—THE SIZES OF COLONIES OF KITTIWAKES (*Rissa tridactyla*) ON THE VARIOUS ISLANDS OF THE ST. KILDA GROUP, MAY 1959

The estimated total number of pairs on each island is also given on the right, but it is considered that these figures may be open to an error of ±20 per cent (see page 254).

	Sizes of colonies								Total	Total
	10	20	50	100	200	300	400	500+	colonies	pairs
Hirta	6	11	8	6	2	1	0	0	34	1,980
Dun	2	2	5	1	1	1	1	0	13	1,310
Soay	1	3	5	6	1	0	0	1	17	1,620
Boreray	1	1	4	3	4	0	0	2	15	2,330
Stacks	0	1	2	3	0	0	0	0	6	420
St. Kilda (Total)	10	18	24	19	8	2	1	3	85	7,660

size takes a binomial form (Table I). There were more colonies of about 50 pairs than of any other size, and 72 per cent of all the colonies fell within the orders 20, 50 and 100. There were more pairs involved, however, in the colonies of the orders 100, 200 and 500 than in those of 50. The largest 3 colonies accounted for 20 per cent of the pairs present.

The largest colonies of about 500 pairs were situated on the gabbro walls of Boreray at Ant-Sail and below Na Roachan (Section 19) and on Soay under Bearraidh na Creige Chaise (Section 16). There were other large colonies in Geo Ghiasgeir (Sections 12, 13) and the south-west geo of Bioda Mor (Section 12), both on Dun; at Geo na Mol (Section 4), the un-named geo immediately opposite Bradastac (Section 4), Geo Chalum M'Mhurich (Section 7), Geo Chaimbir (Section 7), all on Hirta; at Lianish (Section 15) on the west coast of Soay; at Geo an Araich (Section 18) and below Clais na Runaich (Section 19) on Boreray.

The mile-by-mile analysis of occurrence is shown in Table II. The west coast of Boreray is the stronghold of the Kittiwake at St. Kilda, having in 1959 some 1,700 pairs in 6 colonies spread over 1 mile. Excluding Village Bay (Section 1) and Glen Bay (Section 6), which are almost totally unsuitable for Kittiwakes, the other end of the scale was the south-west coast of Hirta which had only about 150 pairs in 2 colonies in a distance of 2 miles (Sections 9 and 10). The physiographical differences between the south-west coast of Hirta and that of Dun, the former fairly smooth and the latter deeply indented, well illustrate the part played by rock formations in determining the occurrence of both the Kittiwake and Guillemot (described below). The structural differences can be demonstrated by measuring the

TABLE II—THE NUMBERS OF COLONIES AND ESTIMATED TOTALS OF PAIRS OF KITTIWAKES (*Rissa tridactyla*) ON EACH MILE OF COASTLINE IN THE ST. KILDA GROUP, MAY 1959

The positions of the numbered sections are marked in Fig. 1.

Hirta			Dun			Soay			Boreray			Stacks		
Mile section	Colonies	Pairs	Mile section	Colonies	Pairs	Mile section	Colonies	Pairs	Mile section	Colonies	Pairs	Mile section	Colonies	Pairs
1	1	20	11	4	180	14	9	410	17	5	270	20	4	270
2	1	20	12	7	890	15	4	410	18	4	360	21	2	150
3	4	140	13	2	250	16	4	800	19	6	1,700			
4	9	730												
5	2	70												
6	3	120												
7	5	530												
8	7	300												
9	1	50												
10	1	100												

TABLE III—THE NUMBERS OF COLONIES AND PAIRS OF KITTIWAKES (*Rissa tridactyla*) AND GUILLEMOTS (*Uria aalge*) AT ST. KILDA, MAY 1959, GROUPED ACCORDING TO THE DIFFERENT POINTS OF THE COMPASS FACED BY THE COAST

Some points of the compass are omitted because no substantial tracts of the coast face these directions.

		Kittiwakes		Guillemots	
	Miles	Colonies	Pairs	Colonies	Pairs
N	7	28	2,310	52	6,120
E	4	19	840	21	980
SE	1	1	20	—	—
SW	4	11	1,290	9	780
W	5	26	5,200	30	5,970
All points	21	85	7,660	112	15,850

straight line distances between the ends of each of these 2-mile sections: 1½ miles for south-west Hirta and ¾ mile for south-west Dun. The ecological parallel was some 1,140 pairs of Kittiwakes in 9 colonies on south-west Dun, compared with 150 pairs in 2 colonies on Hirta.

In Table III the coast is classified, mile by mile, into sections facing different compass points. Not all the main points are shown: there are no really substantial stretches facing south, for example. Most colonies are situated on the west and north coasts, but there are distinctly more pairs on the west, despite the fact that there are only 5 miles of west coast to 7 of north. There are as many pairs per mile on the south-west coasts as on the north, but distinctly less on the east. The west coast, which faces the prevailing winds from the south-west and which is composed of gabbro walls, buttresses and bastions, is the one most densely colonised by Kittiwakes.

DISTRIBUTION OF GUILLEMOTS

The colonies of Guillemots are shown in Fig. 2. It is probable that some of the smaller of these were not breeding aggregations. For example, there were obvious non-breeding groups on the edge of the ramp at Leac Mhina Stac (Section 4), on steeply bevelled stances between Geo Shunadal on Boreray (Section 17) and at the foot of the western Buttress of Bioda Mor on Dun (Section 12).

There were 13,850 pairs (+up to 20 per cent) estimated in 112 colonies situated at least 50 yards apart. The frequency distribution of colony size takes a binomial form (Table IV). There were more colonies of about 50 pairs than of any other size, but only about 13 per cent of the total number of pairs were contained in the colonies of 50. The largest 9 colonies accounted for 47 per cent of the pairs present.

The largest colonies of over 1,000 pairs were situated at Geo Chaimbir on Hirta (Section 7), at Lianish on Soay (Section 15), just north of

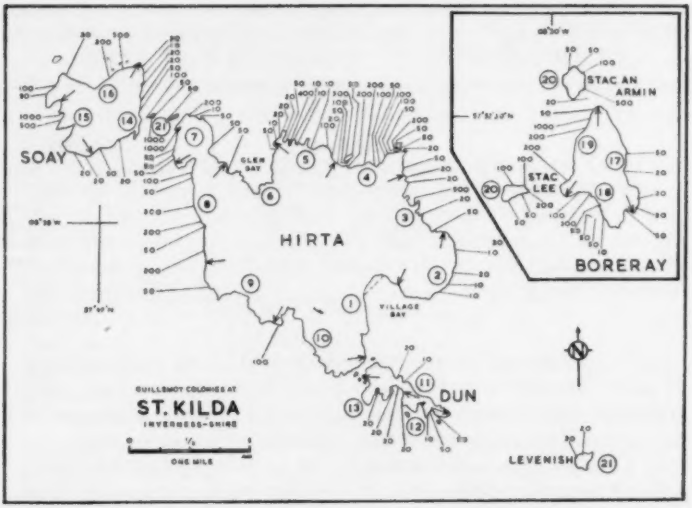

FIG. 2. Positions and sizes of colonies of Guillemots (*Uria aalge*) on the various islands of the St. Kilda group, May 1959. Sizes were categorised under 10, 20, 50, 100, 200 and so on (page 254). The coastline totals approximately 21 miles (page 255) and the circled numbers are those which were given to different mile-sections (the limits of which are indicated by arrows)

Geo na Tarnanach on Boreray (Section 19), and on the summit of Stac Biorach (Section 21). There were other large colonies at Stac a'Langa (Section 3), Geo na Mol (Section 4), Bradastac (Section 4), Geo Oscar (Section 5), at a point south of Geo na Stacan below the spot-height 892 feet on the ridge (Section 8), opposite Sgeir Mhor below Carn Mor (Section 9), at An Airde on Soay (Section 15), west of Geo Ruadh on Soay (Section 16), at Geo an Araich on Boreray (Section 18), and at Am Biran on Stac an Armin (Section 20).

TABLE IV—THE SIZES OF COLONIES OF GUILLEMOTS (*Uria aalge*) ON THE VARIOUS ISLANDS OF THE ST. KILDA GROUP, MAY 1959

The estimated total number of pairs on each island is also given on the right, but it is considered that anything up to 20 per cent should be added to these figures (see page 254).

	Sizes of colonies									Total	Total
	10	20	50	100	200	300	400	500	1,000	colonies	pairs
Hirta	8	10	18	6	6	2	2	2	1	55	6,380
Dun	2	5	2	0	0	0	0	0	0	9	220
Soay	1	7	5	1	1	0	0	2	1	16	2,600
Boreray	1	4	6	1	2	1	0	0	1	16	2,190
Stacks	0	3	6	4	1	0	0	1	1	16	2,460
St. Kilda (Total)	12	29	35	12	10	3	2	5	4	112	13,850

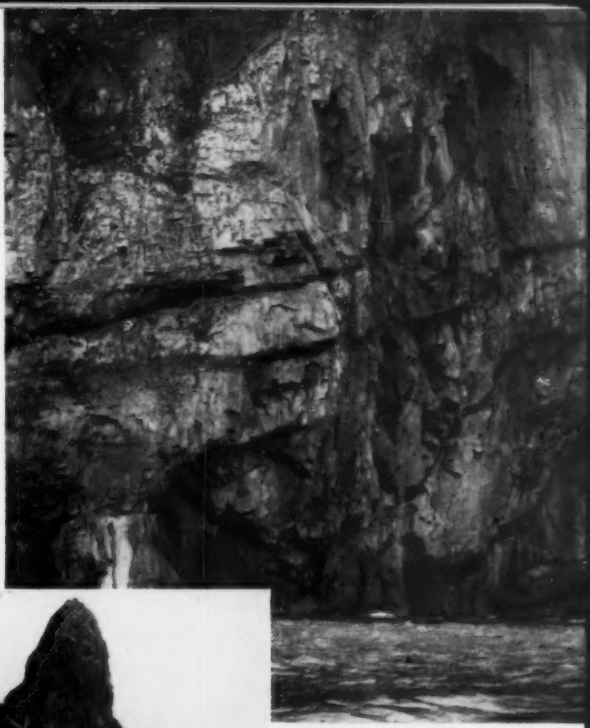

PLATE 33A. The granite walls of St. Kilda, illustrated by the bottom 350 feet of the Ard Uachdarachd buttress of Conachair (the highest sea-cliff in Britain), showing the cleavage of the rock, the undercutting, the sills, the caves and the absence of birds (*photo: J. Morton Boyd*)

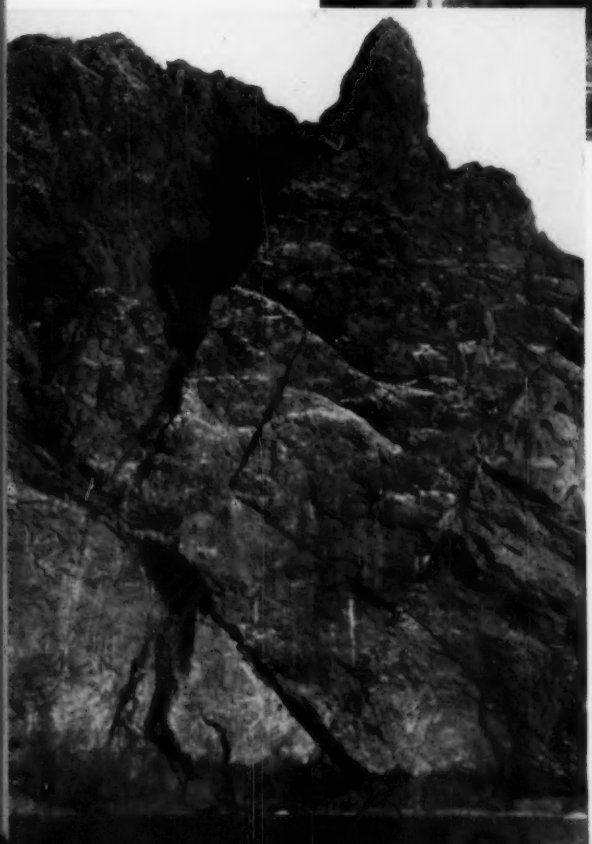

PLATE 33B. The gabbro walls of St. Kilda, illustrated by the 1,250-foot western face of Boreray. The upper ledge systems are crowded with Gannets (*Sula bassana*) and in the bottom 250 feet there is a large colony of Kittiwakes (*Rissa tridactyla*), possibly the largest at St. Kilda (page 256) (*photo: J. Morton Boyd*)

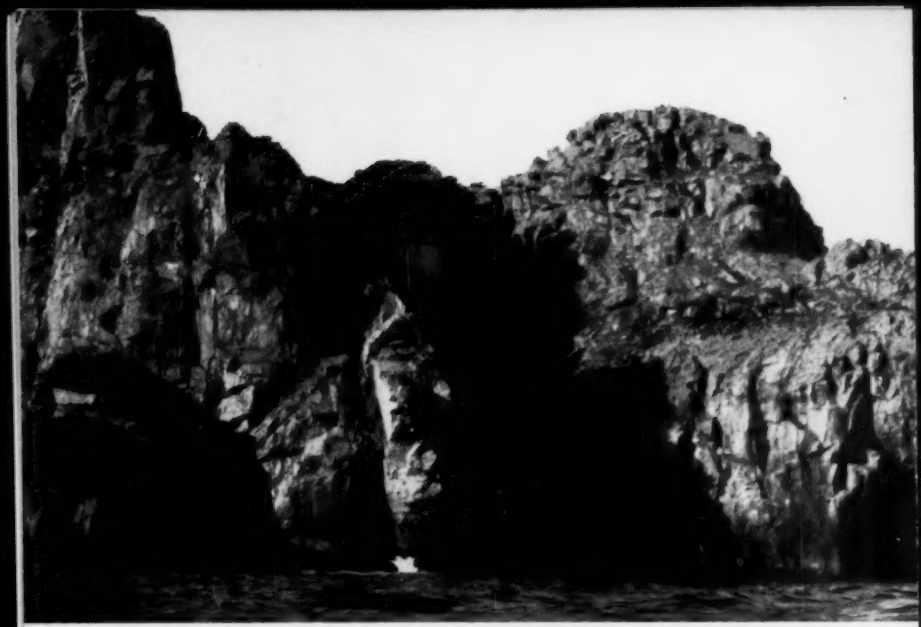

PLATE 34. Above, the gabbro buttresses and bastions of St. Kilda, illustrated by the 300-foot ramparts of south-west Dun; there are few birds on the outward sunlit faces, but the shadowy geo or inlet in the centre holds colonies of Kittiwakes (*Rissa tridactyla*) and Guillemots (*Uria aalge*). Below, the slabs and beaches of the western part of Village Bay, from Dun, showing the sloping pavements round the shore, which are unsuitable for either species (page 256) (*photos: J. Morton Boyd*)

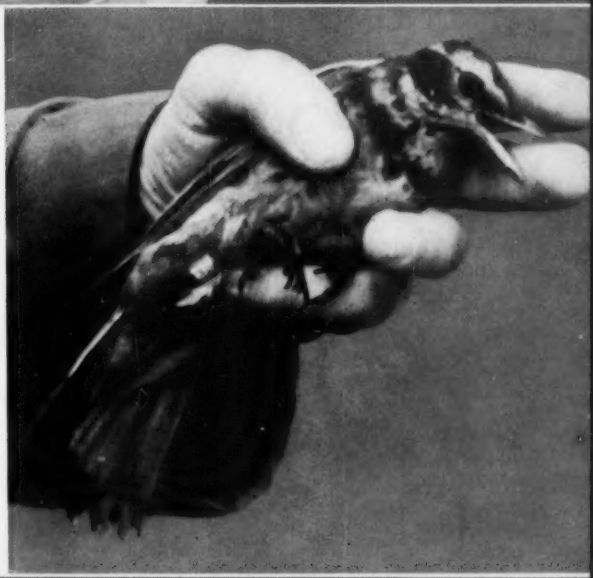

PLATE 35. Dusky Thrush (*Turdus eunomus*), Co. Durham, January 1960. Above and right, note the striking superciliary, double breast-bands and crescentic flank markings (*photos: E. S. Skinner*). The more natural picture below also shows the heavy bill and the light edges to the wing-coverts (pages 275-276) (*photo: B. J. Coates*)

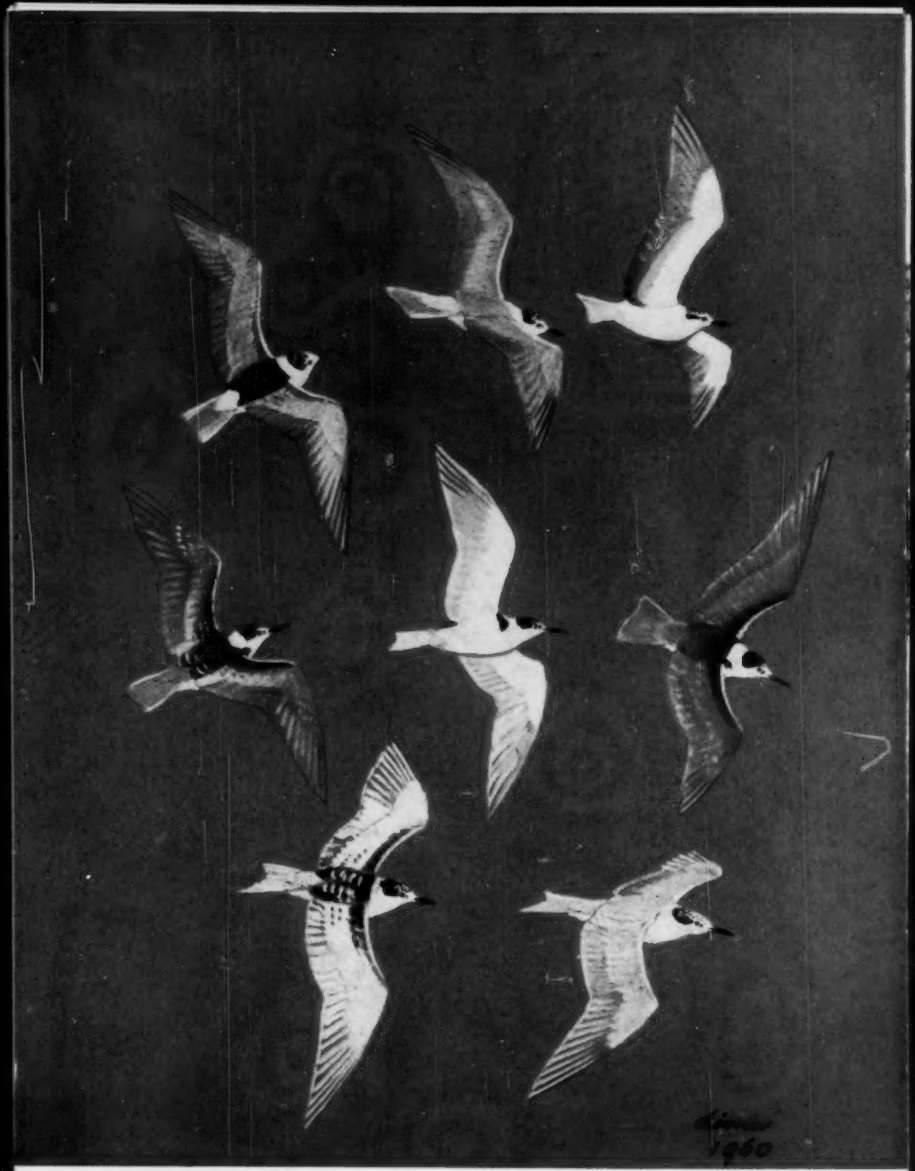

PLATE 36. Marsh terns in non-breeding plumages: top row, White-winged Black Tern (*Chlidonias leucopterus*); centre row, Black Tern (*Ch. niger*); bottom row, Whiskered Tern (*Ch. hybrida*). The three left-hand birds are juveniles, the rest adults in winter. Note the presence or absence of shoulder marks, the larger size and *Sterna*-like appearance of *hybrida*, and the white rump and dark "saddle" of the young *leucopterus* (pages 243-252) (*drawings: D. I. M. Wallace*)

TABLE V—THE NUMBERS OF COLONIES AND ESTIMATED TOTALS OF PAIRS OF GUILLEMOTS (*Uria aalge*) ON EACH MILE OF COASTLINE IN THE ST. KILDA GROUP, MAY 1959

The positions of the numbered sections are marked in Fig. 2.

Hirta			Dun			Soay			Boreray			Stacks		
Mile section	Colonies	Pairs	Mile section	Colonies	Pairs	Mile section	Colonies	Pairs	Mile section	Colonies	Pairs	Mile section	Colonies	Pairs
1	0	0	11	2	50	14	7	190	17	4	110	20	10	1,220
2	5	70	12	4	150	15	4	1,540	18	7	610	21	7	1,260
3	5	610	13	3	60	16	5	870	19	4	1,450			
4	16	1,970												
5	11	670												
6	2	100												
7	6	1,460												
8	6	900												
9	1	500												
10	1	100												

Table V gives a mile-by-mile analysis of colonies and pairs. The stronghold of the Guillemot at St. Kilda is the Soay coast (Sections 14, 15 and 16), including the Cambir (Section 7) and Stac Biorach (Section 21): in 1959 this part had 5,280 pairs in 29 colonies over 5 miles. Other areas of high concentration are Conachair (Sections 3 and 4) and Mullach an Eilein (Section 19) on Boreray. On the other hand, the south-west coast of Hirta (Sections 9 and 10) had only two colonies in 2 miles. The comparisons drawn between the distribution of Kittiwakes on south-west Hirta and Dun (Sections 12 and 13) are different in the case of the Guillemot. There were more colonies and more pairs of Kittiwakes on Dun. There were more colonies and fewer pairs of Guillemots on Dun: 7 colonies on the deeply indented coast of Dun and 2 on the comparatively smooth one of Hirta, but only 190 pairs on the former to 600 on the latter.

In Table III the coasts are also classified for the Guillemots, mile by mile, into sections facing different points of the compass. There were more colonies on the north coasts than in almost all the others put together, but there were as many pairs on the west coasts (and many more if the colony on the summit of Stac Biorach were included in west instead of north), despite the fact that there are 2 more miles of north coast than west.

ASSOCIATION OF SPECIES

As the survey progressed it became obvious that, more often than not, Kittiwakes and Guillemots occurred together in the same localities; stretches of coast of a quarter of a mile or more (some parts probably suitable for Kittiwakes) would be passed without coming across a colony, then both species would be found close together. On most

occasions only one colony of each species was involved in each association, but in deep geos such as those on the west coasts of Dun (Sections 12 and 13) and Soay (Section 15) more colonies were involved. An examination of Figs. 1 and 2 together illustrates this.

The Kittiwakes occupied the meagre ledges capable of supporting one or two nests, and the Guillemots the more spacious ones accommodating usually at least 10 pairs. On Stac an Armin, Guillemots were found under the boulders and among the Gannets (in a typical Razorbill niche), but Kittiwakes only on vertical or nearly vertical rock. Even in the most detached situation on the south-west of Hirta (Section 10) both species were found colonising the same locality: 100 pairs of Guillemots at Rudha Mhurich and 100 pairs of Kittiwakes in the chasm of Amhuinn Gleshgil. Both species took equally to the various types of cliff, their distribution on coasts facing different points of the compass was similar, and the main concentrations of both populations had the same approximate locations.

There were 197 colonies of the two species in 1959 (85 Kittiwake, 112 Guillemot) and 125 of these (60 Kittiwake, 65 Guillemot) were associated. There were 47 more or less distinct associations, 33 of which involved one colony of each species and 14 more than one colony of one or both species. The association was thus strongly developed, and it can hardly be attributed to chance. Probably it was caused mainly by the close proximity of nesting ledges favourable to both species, but perhaps some other less obvious factor such as the activity of one species serving as a stimulus to the other, should not be overlooked. The fact that Kittiwakes could have found nesting sites away from the Guillemot ledges, but apparently preferred not to do so, points to some such underlying factor.

DISCUSSION

One of the most striking features of St. Kilda as a sea-bird breeding station is the way in which the Kittiwakes and Guillemots are largely confined to the lower cliffs (while most other species are more or less absent from them) and are not even particularly numerous there. The upper cliffs are, of course, thickly populated with Fulmars (*Fulmarus glacialis*), Puffins (*Fratercula arctica*) and Gannets.

Most of the past observations of sea-birds at St. Kilda have been made from the ridges or cliff-edges of Hirta. That being the case, there is little wonder that no clear ideas were obtained of the colonies of Kittiwakes and Guillemots. By careful observation from the cliff-edges between the Gap (Section 3) and Gob na h-Airde (Section 5), a number of fairly large colonies of both species are visible. Colonies can also be seen on Stac Biorach (Section 21), the east coast of Soay (Section 14), from the cliff-top of the Cambir (Section 7) and, with the help of a strong telescope, some can be seen on the south-west side

of Boreray (Section 18). The major colonies, constituting the greater part of the strength of both species, are hidden from view on the outward facing coasts of Soay (Sections 15 and 16), the Cambir (Section 7), Mullach Bi (Section 8), Dun (Sections 12 and 13), Boreray and the great stacks (Sections 17, 19 and 20). The only site at which visitors to Hirta can, without undue risk, observe Kittiwakes and Guillemots at close quarters from the land, is at the tunnel at Gob na h-Airde (Section 5). The Geo na h-Airde and Geo Oscar cliffs had Guillemots but no Kittiwakes in 1959, but on the Glen Bay side there was a small association of both species.

Coulson and White (1956) showed that the age and size of a Kittiwake colony are closely correlated if the population is increasing and that the rate of immigration into new colonies can be fairly rapid—about 100 pairs per year. This might indicate that the status of the smaller colonies of Kittiwakes is rather unstable from year to year, and future observers might expect to find a slightly different distribution depending on the period of time which has elapsed. The same could also be the case with the Guillemots. Photographs in the literature, however, show that at least some of the colonies of both species seen in 1959, small ones as well as large ones, have been in existence for many years. Such photographs include ones taken by James Fisher and Robert Atkinson when they visited the islands in 1947 (Fisher 1948), by the R.A.F. in 1941 (Fisher and Vevers 1943), by A. M. Cockburn in 1927 (Cockburn 1935), by H. Heathcote in 1898 (Heathcote 1900), by the Kearton brothers in 1896 (Kearton 1897) and by G. W. Whyte in 1884 (Fisher 1952). The abundance of the "Reddag" or Kittiwake and the presence of the "Lavy" or Guillemot as reported by Martin (1698) probably signified that both species were at that time widespread in the archipelago. The large colonies on Boreray (which he probably saw close at hand since he was stormbound there) and in the Soay Sound (which he also visited) were probably in existence then.

SUMMARY

(1) The colonies of Kittiwakes (*Rissa tridactyla*) and Guillemots (*Uria aalge*) at St. Kilda have not previously been described in detail.

(2) In May 1959 all parts of the coasts of all the islands and stacks were visited and the position of all colonies of these two species at least 50 yards apart were plotted on a 6-inch map. At the same time rough estimates of numbers were made.

(3) Colonies were arranged in the following orders according to the estimates of pairs present: 10, 20, 50, 100, 200, 300, 400, 500 and 1,000. The error in estimates of Kittiwakes was thought to be ±20 per cent, and up to 20 per cent underestimate for Guillemots.

(4) The coast is described and its suitability for nesting sites for both species is discussed. Over wide areas it appears to be unsuitable for Guillemots, but not for Kittiwakes though many of these areas were untenanted by them also.

(5) There were 7,660 (±20 per cent) pairs of Kittiwakes in 85 colonies. Most

of the colonies were of the order of 50 pairs, but 3 of the 85 accounted for 20 per cent of the pairs. The west coast of Boreray had the highest concentration: 1,700 pairs in 6 colonies in 1 mile. Most colonies were found on west coasts, facing the prevailing winds.

(6) There were 13,850 (+ up to 20 per cent) pairs of Guillemots in 112 colonies. Most of the colonies were of the order of 50 pairs, but 9 of the 112 colonies accounted for 47 per cent of the pairs. The highest concentration was on the Soay-Cambir coasts: 5,280 pairs in 29 colonies over 5 miles. Most of the colonies were found on the north coasts, but most of the pairs on the west.

(7) There were 197 colonies in 1959 (85 Kittiwakes, 112 Guillemots). 125 of those (60 Kittiwake, 65 Guillemot) were involved in associations of the two species. These associations were usually sited in the deep geos or inlets and composed of at least one colony of each species. There are 47 more or less distinct associations. It is suggested that a factor in this association may be the social stimulus each species derives from the presence of the other.

(8) Kittiwakes and Guillemots are weakly represented at St. Kilda in comparison with other sea-birds. Most of the major colonies of both species are invisible from the ridges of Hirta which are the usual viewing points for visitors. The status of the smaller colonies may vary over the years, but most of the major ones have probably been in existence since before 1700.

ACKNOWLEDGEMENTS

The author is indebted to Dr. W. J. Eggeling, Mr. Kenneth Williamson, Dr. J. C. Coulson and Dr. D. G. Boddington for helpful criticism, and to Mr. Murdo MacDonald and others for assistance with the boat at St. Kilda.

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Some notes on the Rufous Warbler

By Bryan L. Sage

INTRODUCTION

THIS PAPER is based primarily on observations made from May to October 1958 at Khanaqin in eastern Iraq, a border town on the banks of the Alwand River in the foothills of the Jebel Hamrin Mountains, about 90 miles north-east of Baghdad. When I arrived in the area incubation was already under way, so my notes do not cover the periods of courtship display and nest-building.

I use the name Rufous Warbler for this bird only because this is the one under which it appears in most British books, including *A Field Guide to the Birds of Britain and Europe* (1954) and the *Check-List of the Birds of Great Britain and Ireland* (1952). The race occurring at Khanaqin is *Erythropygia* (*Agrobates*) *galactotes familiaris*, whilst the races on the British List are *E. g. galactotes* and *E. g. syriacus*, the latter being called the Brown-backed Warbler by Witherby *et al.* (1938).

TAXONOMIC POSITION

It may seem out of place to discuss taxonomy in a paper based on field observations, but in the present case the latter are of value in assessing the affinities of the species. The Rufous Warbler was included by Witherby (*op. cit.*) and most other taxonomists of the inter-war period in the Sylviinae (Old World warblers), where it was placed in the monotypic genus *Agrobates*; originally Temminck (1820) had named the typical race in the genus *Sylvia*. Meinertzhagen (1949), whilst agreeing that it should be in the Sylviinae, pointed out the complete lack of any characters separating the genus *Agrobates* from the Ethiopian genus *Erythropygia* and therefore merged the two, the latter being the older name and therefore having priority. However, Chapin (1953) considered that *Erythropygia* was more correctly assigned to the Turdinae (thrushes, chats, etc.), and Vaurie (1955) concurred with this view. Thus, in his most recent work Vaurie (1959) put this species in the Turdinae, in the genus *Cercotrichas*, and called it the Rufous Bush Robin. He placed this genus after the wheatears (*Oenanthe*) and Blackstart (*Cercomela*), and before the rock thrushes (*Monticola*).

I am of the opinion that the *Cercotrichas* bush robins may be considered as a borderline group, in fact a connecting link between the Sylviinae and the Turdinae, their main affinities being with the latter. So far as the Rufous Warbler is concerned, its chief resemblances to the Sylviinae would seem to be the unspotted juvenile plumage and the marked similarity of the young bird to the adult, but unspotted

juvenile plumages (as well as spotted ones) are found in some turdine genera like *Oenanthe*. The song also bears a certain similarity to that of the Garden Warbler (*Sylvia borin*), but songs and call notes often vary geographically within the same species and are thus not conclusive evidence of systematic relationship.

The strongly graduated and rounded tail suggests affinities to *Cisticola* (fan-tailed warblers), *Prinia* (graceful warblers) and *Scotocerca* (scrub warblers), as is well illustrated by the drawings of the tails of representatives of these genera in Meinertzhagen (1954, p. 216). This resemblance may well be the result of adaptive convergence rather than any close phylogenetic relationship, however. I have seen species from all these genera in the field and the Rufous Warbler does not resemble them at all closely in most other respects. Its stout and powerful bill is totally unlike that of any of the Old World warblers and its general behaviour, as I shall show later, is more in line with that of many of the Turdinae. In addition, when studying the Blackstart (*Cercomela melanura*) at Aden, I was much struck by the great similarity between certain aspects of its and the Rufous Warbler's behaviour, particularly the habit of fanning out the tail with a flicking motion and jerking the partly opened wings forward so that the longest primaries almost touch the ground (see under GENERAL CHARACTERISTICS). Neither the Blackstart nor the Rufous Warbler flexes the legs and "bobs" the head and body like *Oenanthe* species.

HABITAT

In the Khanaqin area the Rufous Warbler inhabited riverain scrub (sallow, poplar, acacia, etc.) by the Alwand River; young date palm gardens where there was some rough undergrowth; and irrigated gardens with oleander bushes, eucalyptus and palm trees, lawns and flower beds. The present observations were made mainly in the last type of habitat. A. Stubbs (*Brit. Birds*, 40: 335-336) was quoted as stating that "at Habbaniya it is essentially a bird of the palm groves, although occasionally it is to be found nesting in gardens and hedgerows". Habbaniya is about 60 miles west of Baghdad.

GENERAL CHARACTERISTICS

This is a large and distinctive species, slightly bigger than a Wheatear (*Oenanthe oenanthe*). Its most striking feature is its long rounded tail. This is bright chestnut in colour and all but the central feathers have white tips and a black subterminal band. The bill is strong and powerful; the legs are long and the stance is very upright. The gait is a fast run, and in this connection it is desirable to point out that, whereas B. W. Tucker (Witherby, *op. cit.*) gave among the characters of the Rufous Warbler "frequently hopping about on ground" and Milne *et al.* (1952) state that one seen on the Kent/Sussex border "hopped

along the shingle", I never saw this species hop. However, clearly both methods of progression must be used.

The Rufous Warbler's tail is in perpetual motion and is frequently cocked vertically above the back, moved slowly up and down like that of a wagtail (*Motacilla* sp.) or depressed and spread fanwise to the fullest extent. Occasionally it may even be laid almost horizontally along the back. When on the ground, the bird has a very characteristic habit of holding its wings in a partly opened and drooping position, so much so that the tips of the primaries often scrape on the ground; from this position they are frequently flicked rapidly forwards. The similarity of this action to that indulged in by the Blackstart was mentioned earlier. This wing movement of the Rufous Warbler is made necessary by the tail action: the length of the primaries is such that unless the wings are partly opened or drooped they would tangle with the tail when this is spread.

NEST AND EGGS

As stated earlier, incubation was already in progress when I arrived at Khanaqin. Four nests were located between 21st and 25th May, three of these in oleander bushes at heights varying from 18 inches to 5 feet, and one in a eucalyptus tree at a height of 7 feet. In all cases the nests were fairly substantial structures of coarse grass, roots and a few leaves of eucalyptus, and generally lined with goat hair. Three of the clutches, when complete, consisted of only two eggs and the fourth of but three. Stubbs (*loc. cit.*) found a number of clutches of five eggs and four of six eggs at Habbaniya, so there would appear to be considerable variation. The eggs in the nests under observation all hatched between 27th May and 7th June, but as the dates of laying were not known it was not possible to check the incubation period.

POST-FLEDGING PERIOD

Whilst in the nest the young were fed by both parents, but after they had fledged procedure varied according to the number of them surviving. Of the four pairs under observation, three had two juveniles surviving, whilst the other had one only. The pair with c/3 hatched all the eggs successfully, but one of the young fell from the nest when five days old and was eaten by ants. Two of the pairs with c/2 had no mishaps, but the remaining pair with c/2 lost one young from an unknown cause after hatching.

In the cases of the three pairs with two juveniles each, each adult looked after and fed one bird only. The single juvenile of the other pair was attended indiscriminately by both adults. In connection with the former it is perhaps not without significance from the point of view of relationships to draw attention to the work of Snow (1958), who showed that in Blackbirds (*Turdus merula*) the male and female each

feed different *individual* young after fledging. I believe this to have been what happened with the Rufous Warblers at Khanaqin, although as I was not able to ring the juveniles I cannot be certain that each adult always had charge of the same *individual*. The parents, each with its attendant juvenile, often searched for food within sight of one another, and in every case where I was able to keep both adults under observation at the same time I found that each always returned to its own juvenile and made no attempt to give food to the other. It was, however, a frequent occurrence for each adult and attendant juvenile to feed in areas so far apart that the casual observer would not have known that they were of the same family unit. The close attachment of each juvenile to the adult was most marked, the former following every move of its parent and keeping a short distance in the rear the whole time.

The case of the pair with only one juvenile was most interesting. This bird was fed by both parents who often searched for food together and returned simultaneously to feed it. Generally, however, the adults split up and searched in different areas, returning at irregular intervals to the juvenile. Occasionally the young bird would follow one or other of the adults, running close behind, and shiver its wings and jerk its tail each time its parent halted. For most of the time, however, it was left on its own and during these periods it called incessantly with a high pitched note which I found to be audible up to about 40 yards.

FOOD AND FEEDING METHODS

The majority of the food was taken on the ground. A frequent item in the diet was the large black ant *Messor barbarus* (Formicidae) which was taken in quantity. Other hymenopterous prey specifically identified were *Trogaspidia catanensis* and *T. ballioni* (Nitullidae), and the wasp *Polistes hebraeus* (Vespidae). Small lepidoptera were also taken occasionally, e.g. the Small Mauve Blue (*Zizeeria knysna*). The Rufous Warbler's powerful bill enabled it to deal with quite large insects and a species of grasshopper about two inches long was often snatched up, as well as Mole Crickets (*Gryllotalpa gryllotalpa*) (Gryllidae) and the stick insects *Mantis religiosa* (Mantidae). Earthworms (Lumbricidae) formed a large percentage of the food given to the young.

Feeding methods varied according to the prey. Ants, grasshoppers, Mole Crickets and various other insects were pursued and taken on the ground, and the birds' dexterity in catching the grasshoppers was quite remarkable. Lepidoptera were generally caught in flight. Many small Diptera and Hymenoptera were picked from flowers, the bird sometimes hovering with rapidly beating wings and fanned tail in order to achieve this. Earthworms were sometimes located by

probing in soft ground and on one occasion I counted 32 holes made by a Rufous Warbler in nine square inches of soft earth. When a worm was located the bird would frequently hurl the earth aside by strong jerks of its powerful bill, a form of behaviour certainly not associated with the true warblers. On other occasions worms were hunted in a manner remarkably similar to that employed by the Blackbird, a series of fast runs interspersed by pauses with the head cocked to one side, then a quick jab with the bill.

AGGRESSIVE DISPLAY

My observations suggest that the Rufous Warbler maintains and defends a territory until the young are self supporting. Presumably this is done so that a regular and satisfactory supply of food is available without competition. The arrival of any other individuals of the species in the feeding area immediately triggered off a series of aggressive reactions from the bird whose territory had been invaded. In all such displays that I witnessed there was a standardised aggressive posture (see Fig. 1). The owner of the territory (it was assumed that the male took the aggressive action) would run or fly towards the intruder and, when a short distance away, would adopt a very upright posture in front of its rival. In this posture the tail was fully fanned

FIG. 1. Aggressive posture of ?male Rufous Warbler (*Erythropygia* or *Agrobates galactotes*) towards territorial intruder: upright stance, tail fanned and moved up and down, wings spread and drooped with undersurfaces facing forwards and primaries almost touching the ground (see text) (*sketch: Robert Gillmor*)

and constantly moved up and down, while the wings were fully spread and slightly drooped so that the tips of the longest primaries almost touched the ground and at the same time were turned outwards so that the undersurfaces faced forwards. This attitude would be maintained for a few moments, after which the wings would be folded and the tail depressed and closed. From this position the bird would run backwards and forwards in front of the intruder with lowered head and puffed out feathers, and this in turn would be followed by (a) a quick dash at the intruder or (b) a repeat of the first posture followed by a dash forwards.

FIG. 2. Defensive posture of intruding Rufous Warbler (*Erythropygia* or *Agrobates galactotes*) towards aggressive territory owner: squatting stance, tail fanned and depressed (or occasionally raised vertically), wings drooped and slightly opened, head stretched forwards and bill gaping wide (see text) (*sketch: Robert Gillmor*)

Occasionally the intruding bird would fly away at an early stage in the proceedings, but generally a form of counter display or defensive behaviour would be enacted. This defensive posture had two variations. In the most frequent form (see Fig. 2) the bird would squat close to the ground with the tail fully fanned and depressed, the wings drooped and slightly opened, and the head and neck stretched forwards with the bill gaping wide. In the less common variation of this attitude the tail would be raised vertically instead of depressed. The primary purpose of this attitude appeared to be to present the bright orange-yellow interior of the mouth towards the aggressor, and in those few instances where the tail was held vertically the effect was most startling with this orange-yellow framed by the black and white tipped rectrices. On every occasion that I witnessed this defensive behaviour on the part of the intruder, it merely served slightly to delay the owner of the territory from making the quick dash forwards, but when it finally did so the intruder always flew off and I never observed any actual physical combat. In those cases where both birds of the pair were in the same general area when an

intruder arrived, the presumed female took no active part in the proceedings.

I was much struck by the similarity of some of the postures described above to those used by the Blackbird in certain circumstances. That part of the Rufous Warbler's aggressive behaviour where it runs backwards and forwards with depressed tail, lowered head and puffed out feathers is very similar to what may be seen in the communal display of male Blackbirds (Lack 1941). The Blackbird also sometimes uses the bright orange-yellow of the inside of the mouth in threat display (Lack and Light 1941).

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Notes

Piracy by Gadwall.—On 30th December 1959, near Cley, Norfolk, we watched four Gadwall (*Anas strepera*) worrying a drake Red-crested Pochard (*Netta rufina*), apparently with the aim of robbing it of its food. They followed it very closely and whenever it dived they hunted about anxiously, trying to keep track of its position under water. The Red-crested Pochard was surfacing with large pieces of vegetation and each time the Gadwall immediately closed in to try to take the food. They were successful on at least one occasion during the half hour that we watched. Sometimes one or two of the Gadwall

would break away, but there was always at least one in attendance. The Red-crested Pochard did not seem disturbed by this behaviour and did not allow itself to be dominated; although they followed it closely, the Gadwall appeared a little nervous in their attempts at robbery.

There were other Gadwall on the lake and we noticed that several Coots (*Fulica atra*) and an immature Goldeneye (*Bucephala clangula*) were being worried in the same way, though not with the same persistence. This may have been because these birds were not bringing large pieces of food to the surface as was the Red-crested Pochard. About 250 Mallard (*A. platyrhynchos*) were also present, but they showed no sign of behaving like the Gadwall.

M. HUDSON, T. G. PIERCE and J. H. TAVERNER

[We believe that behaviour of this kind is not uncommon, but there seem to be no published references to it. Through Mr. Hugh Boyd of the Wildfowl Trust, Dr. P. A. Johnsgard informs us that in his experience Gadwall and Wigeon (*A. penelope*) are particularly prone to act like this. He suggests that it may be because they are less ready to dive than are most other dabbling ducks.—EDS.]

Food-pass by immature Peregrine in autumn.—At 6.45 a.m. on 1st September 1959, on Bardsey Island, Caernarvonshire, my attention was attracted by two Peregrines (*Falco peregrinus*) which were flying overhead and calling repeatedly. One was carrying what appeared to be a small mammal of vole size in its talons. The other, following closely, flew up from below and twisted sideways with its feet towards the first bird. A food-pass, like that between male and female or adult and young in spring and summer, was attempted and failed. The two birds flew on, still calling a ceaseless "kek-kek-kek", and a second attempt was made, this time successfully, the prey being passed from foot to foot. Immediately, they both ceased calling and parted. The one which now had the food flew on towards the sea, while the other turned back inland. This latter bird, the one which had originally been carrying the food, was seen to be in immature plumage and I took it to be in its first-winter dress. Unfortunately the plumage of the recipient of the food was not noted, but it seemed very curious that an apparently young bird should be passing food to another out of the breeding-season in this way. It should perhaps be added that Peregrines did not nest on Bardsey in 1959. SUSAN COWDY

[As in the case with some other display actions and songs, the Peregrine's food-pass (which is part display) is sometimes recorded in autumn and I suggest that these birds may well have been a young pair in their second year, i.e. hatched in the summer of 1958. One-year-old Peregrines will sometimes pair, display and make nest-scrapes

without laying eggs. Although the bird which passed the food was still in juvenile plumage, the first full moult of the Peregrine is a very gradual and variable affair; as a result, while some youngsters have fully moulted into adult plumage by June or July of the year after that in which they were hatched, others do not seem to moult at all until the last three or four months of that year.—I.J.F.-L.]

Display of Greenshanks in winter.—On two occasions in the 1959-60 winter I witnessed display by two Greenshanks (*Tringa nebularia*) on the Gann estuary, Dale, Pembrokeshire. At about 11 a.m. on 4th December 1959 when a falling spring tide was still in the estuary, a Greenshank was standing at the water's edge where a tongue of the salting formed a narrow promontory and, beyond a shallow channel, an island. The salting was rather densely covered with dead and withered glasswort (*Salicornia* sp.) about six inches high. Another Greenshank joined the first bird and they proceeded to walk, one about a length behind the other, in a slightly crouching attitude with head, back and tail horizontal and in line, but the legs not flexed. They walked quickly on the bare mud at the edge of the stream and weaved their way through the glasswort, changing places once or twice. After a minute or two the leading bird did a little upward jump, flapping and raising its wings high above its back. Then both performed in this way, at first separately, later sometimes together. After a few minutes the jumps became more frequent and higher, and the area covered extended into the stream, the birds wading out up to their bellies. Some of the jumps became short flights to about three feet high. Once one bird appeared to attempt to alight on the other's back. Between the jumps both made little jabs at the water with the tips of their bills. The intensity of the display subsided gradually and they drifted apart. I heard no note uttered throughout the performance, which occupied fully ten minutes. A Redshank (*T. totanus*) settled very near the Greenshanks during the display, provoking a slight threat from the nearest, but it was ignored when it withdrew no more than a couple of yards.

At about 5 p.m. on 15th March 1960 I noticed two Greenshanks standing close together, facing outwards, in shallow water at the edge of the stream, within fifty yards of the place where I had seen the display in December. They turned towards the bank, ran for three or four yards side by side up the muddy shore, here with scattered tufts of channel wrack (*Pelvetia canaliculata*) which afforded no cover, turned about and ran back into the stream, one a little behind and to one side of the other. On the run up they held themselves in a normal erect posture, but on the run down their heads were lowered a little, but not sufficiently to be described as "rail-like". As they halted in the stream they jumped upwards, flapping their wings and turning to face

one another, without giving an impression of sparring. They did two or three jumps and then stood side by side, dipping their bills to the water. The display, except for the dipping of the bills, was repeated twice. After the third performance they began to feed in a desultory way and drifted apart, and soon afterwards flew a short distance in different directions to feed in earnest. As before, they were silent. The whole incident lasted no more than five minutes.

Greenshank displays (in the breeding-season) have been described in detail by D. Nethersole-Thompson (*The Greenshank*, 1951) and there is a summary (from his then unpublished notes) in *The Handbook*. The upward jumps in both my observations appear to be "little bill-to-bill leaps in air . . . also sometimes a 'leap-frog' display, male jumping over female or vice versa" in a modified form. The pursuits on 4th December correspond with *The Handbook's* "in pursuit of female along ground both birds crouch like rails and male partly fans tail", except for the fanning of the tail and the less emphasised crouching attitude. On the second occasion the runs up and down the beach apparently differ rather too much from the pursuit display for them to be a modification: the striking aspect of this performance was the exact repetition of the actions (except the dipping of the bills). Nethersole-Thompson suspected that mated birds might sometimes winter together, and on the breeding grounds found less excitement shown in displays between birds previously mated than in those of new matings. The stretch of the stream where I saw display had held two Greenshanks all the winter; they were usually well apart, but sometimes within 20 yards of one another. Two were present to at least 27th March, and one to 6th April. T. A. W. DAVIS

Sandwich Tern in the Wash in December.—On 8th December 1959, during a period of widespread gales round the British Isles, we briefly saw a Sandwich Tern (*Sterna sandvicensis*) at close range at the Witham Outfall, Lincolnshire. It is exceptional for this species to occur in the British Isles between late October and the end of March, and there seem to be, in fact, only two previously published December records, one in Yorkshire in 1875 (*The Handbook*, V: 21) and another inland in Somerset in 1945 (*Brit. Birds*, 39: 93). November records are only slightly more frequent. MICHAEL BARRY and DAVID PORTER

[Full identification details have been supplied.—EDS.]

Lesions on leg of Rook.—In connection with the short paper on fowl pox in a Carrion Crow (*Corvus corone*), by R. H. Poulding (*Brit. Birds*, 53: 174-175), I would mention that on 15th March 1928 I caught an adult Rook (*C. frugilegus*) in a trap at Wilmslow, Cheshire. It had excrescences on both legs, but not on the feet, very similar in appearance to those in Mr. Poulding's photograph (plate 24). In

every other respect the bird appeared normal and healthy. When I came to ring it I found that size 3, the usual one for the species, was much too tight a fit and even the size 4 I had to use was none too big. In trying first to fit a size 3 I made a slight abrasion of the incrustation and it bled a little. In the absence of any examination of the growth it is of course impossible to attribute it to fowl pox virus but, as I have said, it looked very similar to what the Carrion Crow was suffering from.

EDWIN COHEN

Dusky Thrush in Co. Durham.—At 10.45 a.m. on 12th December 1959 an unusual thrush was noted at Hartlepool, Co. Durham. It was watched for thirty minutes by R. T. McAndrew and G. Proctor and for fifteen minutes by the writer. Notes and sketches were taken and it was subsequently identified as a Dusky Thrush (*Turdus eunomus*). It was larger than a Redwing (*T. musicus*) and could be distinguished in flight by its lighter and more chestnut colour. The following features determined the identification: typical thrush shape but with a heavier bill; brown upper-parts; conspicuous whitish superciliary contrasting with dark brown lores and ear-coverts; buff-edged secondaries and wing-coverts forming a light mark along the wing; cream-white throat; blackish pectoral band with another broken one below it; grey-white under-parts with heavy blackish crescentic markings on flanks; and dark tail. When first found it accompanied a Mistle Thrush (*T. viscivorus*), two Fieldfares (*T. pilaris*), a Redwing and a male Blackbird (*T. merula*).

It was seen the following day for a short time at 3 p.m. The area was then not visited again until the 19th when the bird was noted to favour a school playing field near the sea. On 20th December it was seen by J. A. Bailey, D. G. Bell and P. J. Stead and on 10th January 1960 it was caught in a mist net by E. S. Skinner and others, and ringed by P. Reid. It was considered to be a male in first-winter plumage. The following detailed description was compiled from notes taken in the field and in the hand:

> Size of Song Thrush (*T. philomelos*). *Upper-parts:* crown brown with dark and light streaks; nape brown with dark streaks; broad white square-ended superciliary flecked grey and extending from bill to side of nape; lores, ear-coverts and cheeks dark brown; whitish behind and below eye; mantle brown with dark streaks; rump and upper tail-coverts chestnut. *Wings and tail:* scapulars dark brown, edged chestnut, tipped white; lesser coverts brown; medium coverts dark brown edged buff; greater primary coverts very dark brown with inconspicuous lighter edges; greater secondary coverts dark brown edged buff; secondaries brown edged buff; primaries brown with lighter tips, chestnut on outer webs, this extending to 2 mm. below the wing-coverts on the 4th and 5th; tail dark brown. *Under-parts:* throat creamy-white, this colour extending to the side of the neck in the form of a quarter collar; rest of under-parts grey-white; feathers on breast black-brown edged white forming a heavily blotched breast band with another narrower one, broken at the centre, below it;

moustachial streak from bill to breast band on right side and from lower malar region to breast band on left side; a black-brown mark on the side of the neck joined the moustachial streak at the side of the lower throat, this being broadly bordered whitish below on the right side, but joined to the breast band on the left side; feathers on flanks black-brown edged white forming conspicuous crescent-shaped marks; under tail-coverts brown broadly edged white, forming indistinct crescent-shaped markings; axillaries white with a pink-chestnut wash. *Soft parts:* bill heavy, upper mandible dark brown, blackish at tip, lower mandible brown with basal two-thirds yellow; gape and inside of mouth yellow; iris dark brown; legs and feet brown-grey. *Measurements* wing: 128 mm., tarsus 34.5 mm., tail 68 mm., bill from skull 17 mm. *Wing-formula:* 3rd primary longest, followed by 4th, 2nd and 5th in that order; 3rd, 4th and 5th primaries emarginated.

The accompanying photographs (plate 35), which were taken when the bird was caught on 10th January, show clearly the broad supercilary, the two breast bands, the crescent-shaped markings on the flanks and the heavy bill.

The following points are also of interest. The call, rarely heard, was Blackbird-like but less deep—a clucking note uttered only in flight either singly or up to three times in succession. A wheezy note, reminiscent of a Starling (*Sturnus vulgaris*), was also heard in flight. The food appeared to be almost exclusively earthworms, though bread was taken occasionally. The general habits recalled those of a Fieldfare, the upright stance, the holding of the bill at a 20° angle and the occasional cocking of the tail on alighting being characteristic. Short grass areas were the favoured habitat and, apart from the field mentioned above, it also fed on an adjacent bowling green and grass plot, rough grassland near-by usually being avoided.

The easterly gales which prevailed during the week previous to the bird being found would, no doubt, account for the appearance of this bird, now regarded as only the second fully authenticated record of the species in the British Isles. It was last seen on 20th February after a stay of ten weeks, during which time it was seen by many observers.

B. J. COATES

Two Bonelli's Warblers in Caernarvonshire.—On the evening of 18th August 1959 a bird that was subsequently identified as a Bonelli's Warbler (*Phylloscopus bonelli*) was caught in the Cristin Heligoland on Bardsey Island, Caernarvonshire, by A. J. Dartnall. The general impression was of a slender leaf warbler that was very grey above and very white below, with prominent greenish-yellow edges to wings and tail feathers and a pale rump of a similar but less contrasting colour; the head was rather pointed, the lower mandible and legs were remarkably pale, and the iris was almost black with a brownish tinge. We took a detailed description by artificial light before releasing the bird at dawn (and this was checked by daylight the first time it was retrapped):

Upper-parts: forehead, crown and nape greyish faintly tinged with yellowish-green, especially on the forehead; back grey-brown tinged with yellowish-green; rump greenish-yellow. *Tail and wings:* tail feathers dark with broad greenish-yellow fringes on outer webs, these narrowing towards the tips (outer pair with very narrow pale fringes); 1st and 2nd primaries dark; remainder of primaries and all secondaries dark with greenish-yellow fringes to outer webs (except on the primary emarginations); tertiaries similar but more broadly fringed; primary coverts also dark fringed with greenish-yellow and other wing-coverts similar but more broadly fringed. The fringes on the remiges formed a greenish-yellow patch on the closed wing. *Sides of head:* pale and rather indistinct stripe above and through the upper eye-line; cheeks similar to eye-stripe, becoming a little darker on upper ear-coverts and in centre of lores. *Under-parts:* generally whitish; axillaries tinged yellow, this colour extending a little on to the flanks; under-wing whitish tinged yellow at the carpal. *Soft parts:* upper mandible horn colour, darker at tip and paler on cutting edges; lower mandible very pale, tinged flesh, slightly darker at tip; legs pale yellowish-flesh and very slender. *Measurements:* right wing 62 mm. (primaries straightened), tarsus 19.5 mm., bill 7.5 mm. from feathers. *Wing-formula:* 4th primary longest, 3rd −0.5 mm., 5th −1, 6th −4, 2nd −5, 7th −7, 8th −9, 1st 4 mm. longer than primary coverts; 3rd, 4th and 5th emarginated.

This bird remained on the island until at least 5th September. During that period it was trapped five more times and it is interesting to note the increase in weight during its recuperation. Two hours after it was first trapped (20.30 hours GMT, 18th August) it weighed 6.75 gm. and the other weights recorded were as follows (beginning with that at release the following morning):

19th August (03.00 hours)	6.35 gm.	31st August (11.00 hours)	7.95 gm.
21st August (12.00 hours)	6.95 gm.	2nd September (11.30 hours)	8.2 gm.
29th August (13.30 hours)	8.9 gm.	5th September (09.00 hours)	9.0 gm.

During these eighteen days a number of observers spent many hours watching the bird in the field. It frequented willows, brambles and reeds, but was not at all skulking. It fed constantly, taking what were presumably insects off the undersides of leaves, and also hovering and flycatching, diving to within inches of the ground and then returning to the same or another perch. Once it picked a small brown caterpillar about half an inch long off a branch and had great difficulty in swallowing it. It was seen with Willow Warblers (*Ph. trochilus*) and Chiffchaffs (*Ph. collybita*) and appeared noticeably smaller and plumper. It quite frequently used a single or double harsh and metallic note "chereek", reminiscent of a Wren (*Troglodytes troglodytes*) and, though softer and higher pitched, equally penetrating; and it also had a more typical *Phylloscopus* "hoo-eet" and a ticking note.

On 10th September 1959, five days after this bird was last seen, a second (unringed) Bonelli's Warbler was found by G. P. Hawthorn in brambles just north of the Observatory. The main feature distinguishing it from Willow Warblers was its white under-parts. No contrasting rump-colour was noted in the field. G. P. H. was joined

by G. J. Langsbury and the bird was headed towards the Lane Heligoland where it was caught. We compared it in the hand with the detailed description taken of the first one over three weeks earlier and it was found to be almost identical except for a slightly clearer eye-stripe. Even its weight, 6.75 gm., was exactly the same as that of the first bird when it was originally caught. Measurements and wing-formula were as follows:

Measurements: right wing 60 mm. (primaries straightened), tail 48 mm., tarsus 19.5 mm., bill 9 mm. from feathers and 12.5 mm. from skull. *Wing-formula:* 3rd and 4th primaries equal and longest, 5th −0.5 mm., 6th −4, 2nd −6, 7th −6.5, 8th −8, 1st 5 mm. longer than primary coverts; 3rd, 4th and 5th emarginated.

This second bird, which was not seen after 10th September, was examined in the hand by Kenneth Williamson, among others. These are the fifth and sixth records of this species in the British Isles.

R. W. ARTHUR

Recent reports and news

By I. J. Ferguson-Lees and Kenneth Williamson

The items here are largely unchecked reports, and must not be regarded as authenticated records. They are selected, on the present writers' judgement alone, from sources generally found to be reliable. Observers' names are usually omitted for reasons of space and in case a report is subsequently rejected, and none of the items will be mentioned in our annual Index. Readers are asked to submit anything of interest as quickly as possible.

This summary is mainly concerned with late April and early May, though it also includes a few interesting summer-visitor reports from the first half of April and touches on one or two other subjects that extend back into the winter.

RARE BIRDS AND OTHER UNUSUAL OCCURRENCES

The three most unexpected species of the period were all sea-birds and all picked up dead: an adult male Ross's Gull (*Rhodostethia rosea*) found at Seaton Delaval (Northumberland) on 30th April; an adult Brünnich's Guillemot (*Uria lomvia*) in winter plumage at Middleton Sands, near Morecambe (Lancashire), on 15th April; and a Madeiran Little Shearwater (*Procellaria baroli baroli*) between Cley and Blakeney Point (Norfolk) on 1st May. There are only two previous British and eleven other European records of Ross's Gull (see also *Brit. Birds*, 52: 422-424) and Brünnich's Guillemot has not been recorded with absolute certainty in the British Isles for many years and not at all previously on the west coast of England; while there are only twelve previous records of the Little Shearwater and some of those are no longer regarded as acceptable.

Most of the other unusual birds have also been aquatic species. A Gull-billed Tern (*Geochelidon nilotica*) was identified at Selsey Bill (Sussex) on 23rd April and other were suspected there about that period. The same place produced a White-winged Black Tern (*Chlidonias leucopterus*) in summer plumage on 27th April—flying with three Black Terns (*Ch. niger*); a second White-winged Black Tern (*cf.* page 244) was identified at Lee-on-Solent (Hampshire) on 11th May, travelling east during a big movement of terns which was widely reported along the south coast and reflected in an inland passage of Black Terns. A Night Heron (*Nycticorax*

nycticorax) that had been shot was found dead at Radipole Lake, Weymouth (Dorset), on 18th April; and in this connection it should be remembered that one was seen in Devon three days later (*Brit. Birds*, 53: 239). A Purple Heron (*Ardea purpurea*) came in at Cuckmere Haven (Sussex) on 27th April and was watched for an hour and a half. There were two more reports of Cranes (*Megalornis grus*): a single one stayed at Lissett (Yorkshire), between Bridlington and Driffield, from 16th (probably 14th) to 27th April; and two first-summer birds were seen at Brancaster (Norfolk) on 28th and 29th April. About then also, on 1st May, five Demoiselle Cranes (*Anthropoides virgo*) flew over at near-by Cley: the secondaries on the right wings of the latter appeared to have been clipped and no doubt they were escapes (*cf. Brit. Birds*, 53: 239). There was also a male Kentish Plover (*Charadrius alexandrinus*) at Cley on the same day.

Great Shearwaters (*Procellaria gravis*) are uncommon in spring and so the occurrence of about 15 off Cork Harbour on 18th April is noteworthy. An Iceland Gull (*Larus glaucoides*) was an unusual visitor to Portland (Dorset) on 16th April and two inland reports of the normally coastal Little Gull (*L. minutus*) might be mentioned here: an adult in summer plumage at Pitsford Reservoir (Northamptonshire) on 26th April and an immature at Wilstone Reservoir, Tring (Hertfordshire), on 1st May. A Spotted Crake (*Porzana porzana*), evidently a migrant, was seen between two patches of *Spartina* on the mudflats of the Medway at Funton (Kent) on 20th March.

The only completely non-aquatic birds we can include in this section are a Goshawk (*Accipiter gentilis*) on the Pembrokeshire coast near the Cardigan border on 8th March, an Alpine Swift (*Apus melba*) over the Brent Reservoir (Middlesex) on 7th May, and a Bee-eater (*Merops apiaster*) at Hill Head, Fareham (Hampshire), on 11th May. Even the one unusual Passerine was a water-bird—a Black-bellied Dipper (*Cinclus c. cinclus*) on Fair Isle from 7th to 10th April (trapped and ringed).

SUMMER VISITOR ARRIVALS

The feature which particularly stands out in a year when the bulk of the summer migrants have tended to be on the late side—apart from the Chiffchaffs (*Phylloscopus collybita*) in February/March and small numbers of other species—has been the wide-spread early arrival of Swifts (*Apus apus*). Normally the main influx of this species does not start until the very end of April, but this year a large-scale movement was conspicuous on the 24th and continued for the next week. The first Swifts reported were three at Portland (Dorset) on the 23rd. The next day, the 24th, 100 were recorded there, a steady flow began in Devon and the south-west, the first ones were seen in most other south coast counties, and the species also appeared inland in Surrey, Middlesex, Somerset, the Midlands, Hereford, Pembrokeshire (Skokholm) and as far north as Nottinghamshire and four localities in Derbyshire. By the 26th gatherings of a hundred or more were reported from the Midlands.

The night of 23rd/24th April and the ones that followed seem also to have brought in a lot of the nocturnal migrant species. For example, Wood Warblers (*Phylloscopus sibilatrix*), Nightingales (*Luscinia megarhynchos*) and Pied Flycatchers (*Muscicapa hypoleuca*) all appeared in the south-west in numbers at this time. Another biggish influx, which appears to have extended up the east coast as far as Scotland, took place on the night of 3rd/4th May and brought Swifts and many warblers to south and east Scotland.

Up to 23rd/24th many of the night migrants had been very scarce—Whitethroats (*Sylvia communis*) in particular being generally late—but odd individuals of some species continued to arrive early. Perhaps the most widely reported of these was the Grasshopper Warbler (*Locustella naevia*). This bird is not normally regarded as appearing much before the end of April and *The Handbook* itemises records up to the 12th. In 1959, however, the first report came from Bedfordshire on 8th April, followed by Devon and Somerset on the 13th and something of an influx on the 14th. A similar picture emerges this year. The first reports came on 9th

April from Hampshire and Nottinghamshire; the former was at Christchurch Harbour and was followed by two more there on the 16th and 17th (those on the 9th and 16th being ringed). The species was then noted in Northamptonshire on the 11th, in Devon from the 14th, in Kent and Warwickshire on the 16th and in Somerset on the 17th. Doubtless there are other records which we have not received and it does seem that we must begin to revise our ideas on the arrival of this bird.

Among other early records the following seem worth mentioning: a Turtle Dove (*Streptopelia turtur*) at Sevenoaks (Kent) on 5th April; a male and two female Red-backed Shrikes (*Lanius cristatus collurio*) at Hams Hall (Warwickshire) on the 20th; Nightingales at Stockbury (Kent) and Weybourne (Norfolk) on the 10th; Sedge Warblers (*Acrocephalus schoenobaenus*) in Kent, Northamptonshire and Nottinghamshire on 6th, 9th and 10th respectively; and Pied Flycatchers in Derbyshire on the 14th and 15th, in Kent on the 16th and in Warwickshire on the 17th. Some early records of Common or Arctic Terns (*Sterna hirundo* or *macrura*) were detailed last month (*Brit. Birds*, 53: 240) and to those should be added three at Selsey (Sussex) on 3rd April, two at Portland (Dorset) on the 4th and one at Folkestone (Kent) on the 5th.

Quite a lot of Hoopoes (*Upupa epops*) were recorded during the period in south coast counties—for example, five in Devon during April. There were also some in Ireland (Cos. Cork, Waterford and Wexford), one or two in East Anglia as far north as Thornham (Norfolk), and, more interesting, one at Kinver (Staffordshire) on 9th April and another found shot at Huddersfield (Yorkshire) on 3rd May.

SHAGS, SISKINS AND COLLARED DOVES

The position with regard to Shags (*Phalacrocorax aristotelis*) in the south-east was interesting throughout the early part of the year. There was a small wreck from end-January to early March (with recoveries in Norfolk, Suffolk, Essex and Kent of ones ringed on the Farnes and the Isle of May). Not very many were noted inland—nothing like the number in February and March 1958 (*Brit. Birds*, 51: 84 and 131)—but nevertheless there were up to eight at Staines (Middlesex) in early February and still two there in late April. More striking were the west-to-east movements reported throughout March at Selsey Bill (Sussex) and, more recently, some remarkable gatherings at Seaford Head (Sussex): 21 on 6th April rose to 31 on the 20th, 30 on the 28th, 46 on the 29th and 52 on 2nd May, all apparently immatures. This is not a common bird in Sussex and these numbers are quite exceptional.

Finally, two species worth keeping an eye on. The large numbers of Siskins (*Carduelis spinus*) which came into the British Isles last autumn resulted in an unusually high winter population in many parts of the country. Now these birds are reported as staying late into April in several parts of England. In Surrey, for example, birds were paired, males were singing and courtship feeding was noted in mid-April. It seems worth watching for breeding. At the same time there are signs of a new push by the Collared Dove (*Streptopelia decaocto*). This species has now been recorded breeding in some eight counties from Kent to Morayshire and it has occurred in the last year or two in a number of other places as far west as the Isles of Scilly and Bardsey (Caernarvonshire). Just recently, however, Collared Doves have been seen in several new localities and two migration records are perhaps particularly significant: one appeared on Fair Isle on 18th April and two very tired birds arrived on Blakeney Point (Norfolk) on 4th May. We suggest that these birds should be specially watched for this summer—though not without remembering the strong possibility of confusion with the domesticated Barbary Dove (*S. risoria*). After this season it is hoped to publish a full summary of the spread in Britain since Norfolk was colonised in 1955-57 (*Brit. Birds*, 50: 239-246).

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Some reviews of

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